Utah Department of Transportation

DESIGN PROCESS

PARTIAL
(Does not include forms. To be added later)
(Design Exception parts still being updated)

September 11, 2003

Select Concept Team

Activity # 01C

Overview
Select the project concept team.

Responsibility
Project Manager

Description
- The Project Manager, with the Region Preconstruction Engineer, selects members to serve on the concept team based upon the type of project as defined in the current approved STIP, and the type of expertise required to develop the Concept Report.

Product
Concept team member list

Distribution
Project File

Activity Checklist
Tasks:
‘ Make necessary contacts
‘ Physically inspect the project
‘ Identify expertise required for project concept
‘ Select members to serve on Concept Team
‘ Concept study kick-off meeting
‘ Contact Public Involvement Coordinator (PIC) to initiate Public Involvement Plan
‘ Contact Value Engineer manager for possible involvement

Input:
‘ Talk to Program Development about the Project as defined on the five-year plan. Obtain Project File, stakeholder list, public involvement plan, and CSS commitments if they exist.
‘ Discuss the project with the Region Director
‘ Request corridor study

Potential Contacts

Entity:	Information Requested:
Federal Agencies FHWA Bureau of Reclamation Bureau of Land Management Forest Service National Park Service Bureau of Indian Affairs	Cultural considerations Recreational Areas Future Plans Permission to Enter
State Land Board	Permission to Enter Plans for Improvements Cultural Considerations
Local Governments City County Indian Nations	Permission to Enter Plans for Improvements

Potential Units Involved in Concept Team

Central Support Personnel:

- Right-of-Way (Central)
- Traffic and Safety
- Environmental Division
- Utilities
- FHWA ***
- Geotechnical Division
- Structures Division
- Value Engineering **
- CSS Director
- Planning Public Involvement Coordinator

Region:

- Right-of-Way
- Traffic and Safety
- Environmental
- Utilities
- Hydraulics
- Region Preconstruction Engineer
- Region Materials Manager *
- Region Construction Engineer*
- Region Operations Engineer/District Engineer *
- Resident Engineer
- Region Landscape Architect
- Region Public Involvement Coordinator (PIC)

* Mandatory involvement
** Mandatory involvement if project estimate is over $2 million.
*** Mandatory involvement on all federally funded projects.

All others, written response.

INTENTIONALLY BLANK

Conduct Preliminary Environmental Review

Activity # 05C

Overview

Determine the level of environmental documentation needed based upon project parameters.

Responsibility

Region Environmental Engineer

Description

- Identify potential environmental resources, which may affect project concept. The study corridor should be large enough to accommodate minor design changes, reasonable design alternatives, drainage, detours, federal- or state-assisted utility relocations, potential equipment staging areas and material borrow or waste sites.
- The Region Environmental Engineer recommends the level of documentation required for the project. Begin coordinating with appropriate resource agencies as soon as practicable.

Product

Preliminary Environmental Review, which includes:

- Potential Resource Identification and Mitigation
- Potential Environmental cost (time and money)
- Potential Environmental Classifications

Distribution

Chief Environmental Engineer
Region Preconstruction Engineer
Project Manager

Activity Checklist

Tasks:

- The Region Environmental Engineer identifies in writing any anticipated environmental factors, which may affect design concept and provide a cost estimate and estimated time for mitigation. Base environmental factors and cost estimates primarily on existing information. Detailed investigations are not conducted during the concept phase of project development.
- Determine the type and scale of initial environmental reviews which may be necessary in the following areas:
  - Cultural and Palaeontological Resources
  - Rare, Threatened or Endangered Species
  - Noise
  - Water Pollution, Wetlands, Floodplains, Stream Encroachments
  - Hazardous Waste
  - Prime, Unique, Statewide, or Local Important Farmland
  - Air Quality
  - Relocations
  - Land Use/Urban Policy
  - Section 4(f) or Section 6(f) Properties
  - Wild/Scenic Rivers
  - Visual, Socioeconomic, Natural Resources, Construction, Geology/Soils, Ecology, and other environmental features unique to the project
  - Community Impacts
  - Indirect and cumulative impacts
  - Invasive Species
  - Historical
  - Archeological
- Obtain purpose and need information from the Project File or Program Development.
- Identify access roads, borrow sites, and other project impacts if practical.

Input:

- Project Parameters: Project description and area map
- Permission to Enter

Potential Contacts

Entity	Information Requested
Federal Agencies such as: US Fish and Wildlife Natural Resources Conservation Service Army Corps of Engineers Bureau of Land Management US Forest Service National Park Service Federal Highway Administration Environmental Protection Agency	Resource Identification Permission to Enter
State Agencies such as: Division of Parks and Recreation Division of State Historical Preservation Division of State Lands and Forestry Department of Environmental Quality Division of Water Rights Division of Water Resources Division of Water Quality Division of Wildlife Resources Others	Resource Identification Permission to Enter
Potential Stakeholders Local Officials Environmental groups Local Businesses Chamber of Commerce Members of the General Public Others	Alternative concepts and ideas Community support/ownership
Private Property Owners	Permission to Enter
Indian Nations	Permission to Enter

INTENTIONALLY BLANK

Develop Concept Plans

Activity #10C

Overview

If necessary, compile maps and plans or sketches showing existing alignments (and alternatives), typical, and project limits. Work with stakeholder groups to ensure their concerns are considered and that all three CSS principles are addressed and concept plans are completed.

Responsibility

Region Preconstruction Engineer

Description

- Develop concept plans.
- Concept plans consist of existing or proposed drawings and designs for use in the Project Concept Meeting. Sources may include "As-Constructed" drawings, project files, aerial photography and/or USGS maps.
- Concept plans contain the general location of the proposed project, and may also include previous project numbers, reference points, stationing, Township and Range location and other information for locating the limits of the project. Concept plans contain details of the existing and proposed roadway typical cross-sections including: number of lanes, widths, clear zones, and sight distances.

Product

Concept plans

Distribution

Project File

Activity Checklist

Tasks:

- Prepare location plans (limited details required)
- Prepare typical cross-sections (limited details required)

Input:

- As-Built Plans
- Existing Maps
- Existing Aerial Photography
- Project File, commitments made to stakeholders by Program Development.

Contacts

- Natural Resources Conservation Service
- U.S. Forest Service
- Automated Geographic Reference Center
- Public Involvement Coordinator
- Identified stakeholders

Identify Land Ownership

Activity # 15C

Overview
Identify the affected landowners along the highway alignment.

Responsibility
Region Right-of-Way Engineer

Description
- Prepare preliminary information for concept report on how the highway improvement affects landowners, possible relocations, mining claims, buildings, highways to be abandoned or frontage roads to be removed from state system and placed in local jurisdiction, etc.
- Obtain County Ownership Plat Maps, USGS Quad Maps, and/or aerial mapping.
- Show a general overview of the affected landowners.

Product
An exhibit map and written information showing the identified landowners and other right-of-way features affected by a new highway facility or improvement.

Distribution
Region Preconstruction Engineer
Project Manager

Activity Checklist

Tasks:

- Review existing project plans
- Review concept
- Obtain County Ownership Plat Maps
- Obtain USGS Quad Maps
- Research old project files
- Identify number of affected landowners
- Identify potential utility right-of-way conflicts
- If possible, identify potential highways or frontage roads to be placed in local jurisdiction
- Evaluate condemnations
- Possible hazardous materials involvement

Input:

- Project Location Map with Termini
- Existing project plans
- County Ownership Plat Maps
- USGS Quad Maps
- Mining Claims
- Existing utility maps showing gas, sewer, water lines (Permits Officer)
- Railroad maps and canal data

Potential Contacts

- County Recorder
- B. L. M. officials, Federal Building
- Utility Companies
- Railroad Companies

Inventory Roadway Conditions

Activity # 20C

Overview
Inventory existing conditions of the roadway segment.

Responsibility
Region Preconstruction Engineer

Description
Inventory existing conditions of the roadway segment. The inventory includes, but is not limited to:

- Utilities
- Capacity and congestion problems
- Geometric inventory (noting any that are part of the 12 critical geometric design elements)
- Condition of existing safety hardware
- Signing inventory
- Substandard signing
- Signal requirements
- Identification and location of detector loops for permanent station counters.
- Identification and location of detector loops for Traffic Signals.
- Bicycle and pedestrian facilities
- Request Draft Operational Safety Report

Include in the inventory condition of existing structures, boxes and culverts. For major structures, boxes and culverts (width is twenty feet or greater) obtain the inventory report from the Structures Division (Structures Recommendation Report). Consult Maintenance personnel to determine culvert conditions and capacity adequacy.

Product
An existing conditions inventory report of the roadway segment.

Distribution
Project File

Activity Checklist

Tasks:

- Review existing roadway plans
- Review traffic data and conflicts
- Review possible utility conflicts
- Review Maintenance Management System (MMS) for historical costs and trends
- Identify R/W limitations
- Evaluate Design Standards
- Identify maintenance concerns
- Identify community concerns
- Evaluate access management and potential conflicts
- Assess needs for Intelligence Transportation System (ITS): ramp metering, road weather information system, variable message signs, etc.
- Identify other safety concerns

Input:

- Existing Roadway Plans:
  - Horizontal Alignment
  - Vertical Alignment
  - Typical Sections
  - Structures
  - Hydraulics
  - Signing
  - Signals
  - Lighting
  - Pavement
  - Average daily traffic, design hourly volumes, percent trucks, and major intersection/interchange turning movements for current and 20-year projections. Directional traffic volumes, if applicable.
- Region Utilities: UDOT and private
- Existing Right of Way
- Maintenance Management System (MMS)
- Twelve Critical Geometric Design Elements
  (AASHTO Policy for Geometric Design Criteria)
  - Design Speed
  - Lane Widths
  - Shoulder Widths
  - Horizontal Alignment
  - Vertical Alignment
  - Grades
  - Stopping - Sight Distance
  - Cross Slope

Input, continued:

- Superelevation
- Structural Capacity
- Vertical Clearance
- Bridge Width

- Draft Operational Safety Report
- Talk to the Maintenance and Operations Engineer, Area Supervisors, and/or Station Foreman about the project from their perspective.
- Design Flows for major drainage structures, if available.
- Structures Recommendation Report
- Other Design Items to be Considered:
  - Weave Lanes
  - Tapers
  - Clear Zone
  - Turning sight distance

Potential Contacts

- Federal Highway Administration
- Local Municipality
  - Public Works Director
  - Engineer (City/County)
- Structures
- Materials
  - Region Office
  - Engineer (City/County)
- Maintenance
  - Region Office
  - Station Foreman
- Construction
  - Central Office
  - Region Office
- Traffic and Safety
  - Central Office
  - Region Office
- Office of Motor Carriers
- Hydraulics
  - Region Office
- Program Development
- Urban Planning
  - Statewide Planning
- Region Utility and Railroad Engineering Coordinator

INTENTIONALLY BLANK

Verify Pavement

Activity # 25C

Overview

Verify pavement condition prior to determining possible project concepts. Gather input data from various sources to verify the condition of the pavement or alignment.

Responsibility

Region Materials Engineer

Description

- Determine the condition of the existing pavement using detailed data sheets from the Statewide Pavement Survey.
  - Data may be supplemented by obtaining no more than two cores per kilometer.
  - In exceptional cases, obtain soil samples, or take more than 2 cores per kilometer.

Product

Written Pavement Condition Report and preliminary pavement strategy with estimated preliminary pavement thickness.

Distribution

Region Preconstruction Engineer
Project Manager

Activity Checklist

Tasks:

- Materials evaluation
  - Prepare preliminary testing strategy
  - Conduct inventory of the existing pavement or alignment
- Determine possible Project Alternatives
  - Review preliminary testing
  - Estimate preliminary pavement thickness
  - Verify that the recommended pavement type is consistent with the corridor plan

Prepare written Pavement Condition Report

Input:

- Project Location Map with Termini
  - Pre-testing (Pavement Management Data) 1 core per kilometer
  - Dynaflect or Falling Weight Deflectometer
  - Rut measurements
  - Ride index
  - Cracking type and extent
  - Skid index
  - Traffic data
  - Coring (as needed)

Prepare and Request Design Exceptions

Activity # 30C

Overview

Prepare Request for Design Exceptions and submit it for approval.

Responsibility

Project Design Engineer

Description

- Submit the design exception request on the UDOT Standardized form with supporting documentation justifying retention of a substandard feature, including PIN, after the concept meeting has been held.
- All design elements, which do not meet UDOT and/or AASHTO design standards, require a design exception approved by the Preconstruction Engineer.
- Include in the supporting documentation an evaluating the effects of the variance on the safety and operation of the facility. Consider four issues in the analysis:
    1. To what degree is a standard being reduced?
    2. Will the exception affect other standards?
    3. Are features being introduced to mitigate the design deviation?
    4. Are the design exceptions a result of implementing CSS and what are the trade offs?

Product

Design Exception Request

Distribution

Preconstruction Engineer
Region Preconstruction Engineer
Project Manager

INTENTIONALLY BLANK

Conduct Project Concept Meeting and Develop Report

Activity # 35C

Overview

The concept team will determine the project concept.

Responsibility

Project Manager

Description

The Project Manager schedules the Concept Meeting and distributes to each of the concept team members prior to the concept meeting copies of the following documents as available:

- The completed Project Inventory Report.
- Preliminary Environmental Report.
- Draft Operational Safety Report.
- Public Involvement Plan
- Structure Condition Report, Pavement Condition Report.
- Concept plans.
- Proposed design exceptions.
- A brief description of proposed project parameters.
- Other documents pertaining to the project.

Each concept team member reviews the documentation prior to the concept meeting. The team then meets to determine project parameters and required design exceptions.

A report is developed from the minutes of the concept meeting outlining:

- Improvements to be made
- All the deficiencies not recommended to be corrected with the project and the reason they are not being corrected
- Summary of critical elements not to be corrected
- Project concept cost estimate
- Input received from stakeholders, feedback to stakeholders based on their input, and commitments made to stakeholders

If the report recommends that any of the geometric critical design elements not be corrected, the team submits the required design exceptions to the Preconstruction Engineer for approval prior to completing the Concept Report.

The Traffic and Safety Division finalizes the Operational Safety Report and includes it in the Concept Report.

The Preconstruction Engineer reviews the Concept Report for compliance with the corridor plan.

The Project Manager reviews the report for a Public Involvement Plan and the commitments made to stakeholders.

The Region Preconstruction Engineer signs the concept report and, in concurrence with the Project Manager and Region Pavement Management Engineer, recommends it for approval. The Region Director approves signs the Concept Report.

Product

Concept Report (Including Public Involvement Plan and estimate of project costs and estimate of time required to develop plans).

Distribution

Concept Report:

- Region Director
- Programming Engineer (Two copies)
- Concept Team members

Activity Checklist

Tasks:

- Distribute completed inventory reports and preliminary plans to concept team members
- Assemble concept team members
- Review inventory data and project concept
- Conduct field review
- Compare inventory data with field review
- Identify possible design exceptions
- Record minutes of meeting
- Identify project parameters
- Prepare estimate of quantities
- Prepare cost estimate
- Prepare Project Concept Report
- Distribute minutes and Project Concept Report
- Identify need for environmental clearance for borrow/disposal/staging sites

Input:

- Concept Plans
- Concept Project Inventory Reports
- Corridor Study (if available)
- Time, duration estimate from PPMS
- Preliminary Environmental Review
- Draft Operational Safety Report
- Pavement Condition Report

Public Involvement Plan

Activity #38C

Overview

Develop and implement a Plan that provides for early and continuous public involvement in the project. The Plan allows the project team to identify and address the concerns of the stakeholders throughout the project.

Responsibility

Public Involvement Coordinator

Description

- The Public Involvement Coordinator, with the assistance of the Project Manager, identifies the internal and external stakeholders for the project.
- The Public Involvement Coordinator, with the assistance of the Project Manager, develops a Public Involvement Plan that enables all stakeholders, including the general public, to provide input on the project.
- The Public Involvement Plan will contain the plans documenting Public Hearings, Scoping Meetings, and other public gatherings that promote an open exchange of information and ideas between the public and transportation decision-makers.
    - Provide a means for early and continuous public involvement.
    - Document the desired level of acceptance for each project phase.
    - Document commitments made to stakeholders.
    - Provide a means for the commitments made to stakeholders to be passed on, through the various stages of the project.
    - Provide a means for renewed dialogue if it is found necessary to alter commitments made to stakeholders.
    - Develop or update existing Public Involvement project file that incorporates the Public Involvement Plan.
    - Include documentation of public involvement efforts from the program development phase.

Product

Public Involvement Project File (If not already created in Pre-STIP)
Public Involvement Plan

Distribution

Public Involvement Coordinator
Region Preconstruction Engineer
Region Environmental Engineer
Project Manager
Project Team

Activity Checklist

Tasks:

- Update Public Involvement Project File
- Documentation commitments made to stakeholders
- Identify all internal and external stakeholders

Media Relations

Activity # 39C

Overview

The Project Manager and the Community Relations Office will develop an appropriate Media Relations strategy for the project.

Responsibility

Project Manager

Description

- Review initial project scope and schedule with Community Relations Office.
- Jointly develop a Media Relations plan.

Product

- A comprehensive Media Relations Plan that identifies issues associated with the project and strategies for communicating these issues to the media.

Distribution

- Project Manager
- Project File
- Region Public Involvement Coordinator (PIC)
- Community Relations Office

Activity Checklist

Tasks:

‘ Identify initial project scope and schedule
‘ Identify potential project issues
‘ Meet with the Community Relations Office
‘ Develop Media Relations Plan

INTENTIONALLY BLANK

Conduct Continuity Review

Activity # 40C

Overview
UDOT Program Development reviews to assure project concept compliance with the corridor plan.

Responsibility
Programming Coordinator

Description
- The Programming Engineer reviews and authorizes funding based on funding allocations and the estimate in Project Concept report.
- The Programming Engineer places the project in the STIP, statuses this Activity in PPMS, signs a copy of the Project Concept Report, and returns the signed copy to the Region for their files.

Product
Project placed in the STIP program
Activity 40C status, complete

Distribution
Region Preconstruction Engineer
Project Manager
FHWA

Activity Checklist
Tasks:
- ‘ Obtain project estimate amount from Project Concept Report
- ‘ Place project in the STIP
- ‘ Status Activity in ePM

Input:
- ‘ Approved Project Concept Report
- ‘ Design Exceptions

INTENTIONALLY BLANK

Obtain Consultant Services

Activity # 01D

Overview
Obtain consultant services

Responsibility
Consultant Services Manager

Description
- Project Manager reviews resources with the Region Preconstruction Engineer and documents the need for a consultant. Submits a request for consultant services, R709, Independent Cost Estimate, and Scope of Work.

Review requests for consultant services:
- Either advertise Request for Qualification (RFQ), oversee consultant selection, negotiate, prepare, and execute the contract, and authorize the consultant to proceed with the work, **or:**
- Process Pool Contract for consultant services from Consultant Pool.
- For a detailed description of the process for obtaining consultant services, see the Consultant Services Manual.

Product
Consultant Services Contract

Distribution
Consultant Services
Consultant
Local Government, if applicable
Project Manager
Program Development
Comptroller's Office
Central Records
FHWA (Federal Involvement project only)

Activity Checklist

Tasks:

Consultant Selection Procedure:

- Prepare Scope of Work
- Prepare independent cost estimate
- Prepare R-709
- Prepare Request for Qualification (RFQ)
- Obtain approval of Selection Review Board
- Hold Selection Coordination Meeting (Refine RFQ for advertising)
- Advertise RFQ
- Evaluate proposals
- Tabulate evaluations
- Hold Selection Board meeting to select consultants for interviews
- Contact consultants for interviews
- Hold interviews
- Announce selection
- Hold pre-negotiation meeting with consultant to discuss scope of work and level of effort for cost proposal consultant
- Request information for contract preparation
- Prepare and negotiate the contract
- Issue authorization to begin work

Input:

EPM Report on UDOT staff availability:

- Scope of Work
- Independent Estimate of Hours (From EPM)
- Selection Board Members
- Concept Report

Potential Contacts

- Consultant
- FHWA
- Local Government
- Project Manager

Potential Areas Involved in Obtaining Consultant Services

Central Support Personnel:

- Program Development**
- Internal Audit**
- Project Management Engineer
- CSS Director *
- Environmental Division*
- Right of Way*
- Structures*
- Geotechnical*
- Hydraulics*
- Traffic and Safety*
- Value Engineering*
- Construction*
- Materials*
- Research*

Region Support Personnel

- Region Director**
- Region Project Manager**
- Region Landscape
- Region Hydraulics*
- Region Traffic and Safety*
- Region Construction*
- Region Environmental*
- Region Utilities
- Region Right-of-Way Engineer*
- Region Public Involvement Coordinator*

Others

- FHWA
- Attorney General's Office

** Mandatory Involvement
* As needed for specific type of project

INTENTIONALLY BLANK

Develop Mapping and Topography

Activity # 02D

Overview
Obtain mapping and topography for the total length of the project

Responsibility
Project Design Engineer

Description
- The Project Design Engineer, cooperating with the Region Right-of-Way Engineer and Project Manager, determines the detail and accuracy of mapping, topography, and Section Corner Ties required for the project.
- The Project Design Engineer determines what is already available and what type of survey, aerial survey, or combination is needed to develop roadway plans.
- After the type of survey and the accuracy requirements have been determined, the Project Manager arranges to obtain the required surveys. In most cases three options are available:
    1. Survey crew
        A. Region location crew if available.
        B. Construction engineering crew—Party chief with Land Surveyor license preferred.
    2. Obtain consultant for survey only through approved pool contract or Request for Qualifications (RFQ) according to project size.
    3. Obtain one consultant for surveying and aerial photography combined through pool contract or Request for Qualifications (RFQ), according to project size.
- Consultant and/or Survey crew converts all mapping and topography to electronic data files and format to be compatible with UDOT's CADD System. Refer to CADD Workflow Document and Engineering Consultant CADD Guidelines.
- Consultant certifies all contracted maps and topography as correct in accordance with the requirements of the contract.

Product
Topography map and survey data for the project in electronic data files.
Digital terrain model of existing ground.

Distribution
Project File

Activity Checklist

Tasks:

- Determine type of survey:
  - Total Station Survey
  - Conventional
  - Aerial
    - Electronic only
    - Electronic plus photo
- Determine whether to use UDOT crews or consultant.
- Choose control points with elevations
- Prepare and execute contract with aerial mapping consultant and coordinate with the Project Surveyor and Region Right-of-Way Engineer
- The consultant/project surveyor certifies accuracy
- Project Design Engineer checks information/data for accuracy
- Field check for up-to-date completeness

Input:

- Old plans, if available
- U. S. Geological Survey Quad Sheet with Preliminary Alignment
- Basis for survey
  - Section Corners
  - Existing Right-of-Way Markers
  - USGS Monuments
  - State Plane Coordinate System
  - Local Survey Monuments
- Accuracy standards and scale
- Type of survey required
- Current UDOT Photogrammetry & Mapping Standard Guidelines.
- UDOT CADD Workflow Document.
- Engineering Consultant CADD Guidelines.

Potential Contacts

Agency	Information Requested
Federal Agencies Bureau of Land Management Forest Service National Park Service Bureau of Reclamation U. S. Geological Survey	Permission to Enter Survey markers
State Land Board	Permission to enter
Indian Nations	Permission to enter
Railroads	Permission to enter
Private Property Owners	Permission to enter

INTENTIONALLY BLANK

Conduct NEPA Scoping

Activity # 03D

Overview

Input is received from stakeholders regarding the proposed project. Stakeholders should be included in the NEPA scoping process.

Responsibility

Project Manager

Description

- The Project Manager, Region Public Involvement Coordinator, and the Region Environmental Engineer utilize the Public Involvement Plan to determine the list of stakeholders that will be notified of the proposed project. Stakeholders include all agencies, groups, organizations, and the general public that could have an interest in the project.
- Stakeholders are invited to provide input on the proposed project in one or more meetings conducted by the project manager.
- Written comments are obtained from stakeholders regarding the proposed project.

Activity Checklist

Tasks:

‘ Document all scoping activities and commitments made to stakeholders in the project file.

Input:

‘ Commitments made to stakeholders in concept phase.

Product

Documentation of all scoping activities and commitments made.

Distribution

Project Manager
Region Preconstruction Engineer
Region Public Involvement Coordinator

INTENTIONALLY BLANK

Define Project Team and Hold Project Kickoff Meeting

Activity # 04D

Overview

Define the project team and hold the project kickoff meeting.

Responsibility

Project Manager

Description

- The Project Manager proposes members to serve on the project team based upon the type and characteristics of the project as defined by the concept report. He/she determines what functional units will be involved in the design and construction of the project depending on the expertise required.
- The Project Manager and team members then contact each functional manager to agree on team members and finalize required time commitments through a negotiation process.
- The Project Manager holds a kickoff meeting with the members of the team to develop and approve the project charter, schedule, quality plan, communication plan, and public involvement plan.

Product

A project charter, quality plan, communication plan, public involvement plan, and acceptance of the scope, schedule and budget for the project.

Distribution

Project File
Members of project team

Activity Checklist

Tasks:

- Work with Region Preconstruction Engineer, Region Director, Region Construction Engineer, and Division heads at headquarters to select staff resources.
  - Determine technical needs of project
  - Determine technical capabilities within the Department
  - Determine availability of staffing resources
  - Select and agree on team member(s)

- Identify stakeholders to be included in kickoff meeting.
- Plan Kick-off meeting and notify team members and all identified stakeholders.
- Prepare draft project charter.
- Prepare draft quality plan. If a consultant is going to be used have them bring QC/QA plan to the kick-off meeting, and make any revisions or adjustments according to team members.
- Prepare draft communication plan.
- Prepare draft public involvement plan.
- Prepare the budget and schedule in EPM, using the concept report information.
- Hold the kick-off meeting.
- Discuss the need for visual simulations. Some ideas that simulations can be used as a tool for are:
  - community understanding, input and buy-in
  - right of way purchasing
  - traffic congestion
  - mitigation
  - construction traffic
- Finalize and have everyone on the team approve the project charter, quality plan, communication plan, and public involvement plan.

Input:

- Concept Report
- Budget from EPM
- Schedule from EPM
- Milestones from EPM
- Designer's Quality Control procedures
- Lessons Learned Data

Potential Contacts:

Federal Agencies:

- FHWA

Region:

- Region Director
- Region Preconstruction Engineer
- Region Construction Engineer
- Project Design Engineer (UDOT or Consultant)
- Region Materials Engineer
- Region Environmental Engineer
- Region Landscape Architect
- Region Hydraulics Engineer
- Region Utility / Railroad Coordinator
- Construction Resident Engineer
- Region Right-of-Way Engineer
- Region Traffic Engineer
- Public Involvement Coordinator
- Identified Stakeholders

Central Support Personnel:

- CSS Director
- Value Engineer Manager
- Right-of-Way
- Project Geotechnical Engineer
- Project Structural Engineer
- UDOT Environmental Engineer
- UDOT Hydraulic Engineer
- Pedestrian and Bicycle Planner

Input:

- Project File documenting the commitments made to stakeholders

INTENTIONALLY BLANK

Value Engineering Analysis

Activity # 08D

Overview
Complete a value engineering analysis of the project.

Responsibility
Project Manager

Description
Value Engineering (VE) is the systematic application of recognized techniques which:

- Identify the function of a product or service.
- Establish a value for that function.
- Identify value engineering alternatives that provide the necessary function reliably at the lowest overall cost.

In all instances, the required function is to be achieved at the lowest possible life-cycle cost consistent with requirements for performance, maintainability, safety, and aesthetics.

- The Project Manager develops and updates a three-year VE Work Plan by evaluating their projects over $2 million and determines if they are good candidates for a VE analysis.
- Prior to the VE analysis, the Project Manager, coordinating with the Value Engineering Manager, selects the VE team (five to eight people) based upon the disciplines involved in the subject project.
- The VE team conducts the VE analysis (See VE Manual of Instruction).

Product
- Value Engineering Report

Distribution
- Project Manager
- Region Preconstruction Engineer
- Project Design Engineer
- Project File
- UDOT Value Engineer

Activity Checklist

Tasks:

- Identify Value Engineering team
- Assemble all project information
- Conduct Value Engineering Analysis
- Prepare Value Engineering Report
- Document an implementation plan and report results

Input:

- Plans
  - As-Constructed
  - Preliminary
    - Horizontal Alignment
    - Vertical Alignment
    - Typical Sections
  - Right-of-Way
  - Utilities
- Detailed Estimate
- Topography Sheets and Contour Maps (aerials)
- Design Study Report
- Environmental Classification (Draft Environmental Document)
- Pavement Design Data
- Structures information:
  - As-Constructed Plans
  - Sufficiency Ratings
- Drainage Data

Contacts

- Project Design Engineer
- Value Engineering Manager
- Region Preconstruction Engineer
- FHWA

Additional References

- AASHTO Policy on Geometric Design of Highways and Streets
- UDOT Standard Drawings (Road, Traffic Control and Structures)
- UDOT Standard Specifications for Road and Bridge Construction
- UDOT Average Unit Cost and Numerical Bid Item List
- AASHTO Roadside Design Guide
- AASHTO Manual on User Benefit Analysis of Highway and Bus Transit Improvements
- Manual on Uniform Traffic Control Devices
- Value Engineering Manual of Instruction
- AASHTO Value Engineering Guidelines
- AASHTO Guide for the Development of Bicycle Facilities

Conduct Scoping Meeting and Develop Minutes

Activity # 10D

Overview

All stakeholders should be included in a scoping meeting. Identify all design features to be included in developing the project based on the type of project and the concept report. Develop scoping meeting minutes and an Engineer's estimate showing estimated project costs.

If the concept of the project changes significantly or the cost of the project exceeds the programmed cost by more than 20 percent, refer the project to the following sources:

1. For local government projects: Refer to the Local Governments Project Engineer for coordination with the Metropolitan Planning Organization or Joint Highway Committee.
2. For Preservation Projects (rehabilitation or structural overlays): Refer to the Pavement Management Engineer to re-evaluate conformance with corridor plans and relative priority with other similar projects.
3. For reconstruction or new construction projects: Refer to the Engineer for Planning to re-evaluate priority with other projects in the Statewide Plan.

"Significant Concept Changes" include:

1. Inclusion of any design feature specifically excluded in the concept report.
2. Change from structural overlay to rehabilitation.
3. Increase in number of lanes as designated in the concept report.
4. Bridge rehabilitation to bridge replacement.
5. Change in project termini that would increase estimated cost by 20 percent.

The Pavement Management Engineer and/or Engineer for Planning submit recommendations to the Program Development Director for funding review. The Program Development Director/Local Governments Project Engineer reviews fund availability and makes recommendation to the Transportation Commission.

Responsibility

Project Manager

Description

- The Project Design Engineer prepares plans showing all existing roadway features so the project can be scoped.
- Each member of the scoping team receives copies of the concept report and the plans.
- With these two documents, the scoping team conducts an in-depth project scoping to determine items to be included in the project, and to determine an estimated cost.
- Request Operational Safety Report.

Product

Scoping minutes stating findings and recommendations
Estimated Project Cost

Distribution

Design Engineer File

Activity Checklist

Tasks:

- Prepare Scoping meeting minutes and Engineer's estimate.
- For projects having significant change in concept or cost increase exceeding 20 percent of programmed amount, follow procedures outlined under "OVERVIEW" section.
- Approve Scoping meeting minutes reviewed by Region Preconstruction Engineer and Region Construction Engineer
- Document commitments made to stakeholders in Project File

Input:

- Commitments made to stakeholders in concept phase (Project File).
- Concept Report
- Roadway Plans
  - Topographic Features
  - Centerline
    - Auxiliary Road
      - Center Line Ties
      - Topographic Features

Potential Units to Be Involved in Scoping Team

- Community Relations
- CSS Director
- FHWA
- Right-of-Way
- Geotechnical
- Structures Division
- Program Development
  - Pedestrian, Bicycle, Transit Planner
- Hydraulics
- Traffic and Safety
- Environmental Division
- Value Engineering
- Central Construction Division
- Region:
  - Region Project Manager
  - Region Maintenance Engineer (Mandatory)
  - Project Design Engineer
  - Region Public Involvement Coordinator
  - Region Materials Engineer
  - Region Construction Engineer (Mandatory)
  - Region Utilities (Mandatory, if utilities are impacted)
  - Region Preconstruction Engineer
  - Region Right-of-Way Engineer

Develop Initial Alignment and Stake Control Line

Activity # 13D

Overview

Develop initial horizontal and vertical alignment.
Once the highway alignment has been determined, transfer the horizontal alignment to the ground so additional features present but not noted in the preliminary design may be obtained from field reviews.

The Project Manager, Region Preconstruction Engineer and Project Design Engineer conducts a field review to verify complete evaluation of all relevant features and conditions.

Responsibility

Project Design Engineer

Description

In accordance with AASHTO and UDOT standards, Project Design Engineer:

- Develops initial horizontal and vertical alignment for the project, including grade crossings, environmentally sensitive areas, and hydraulic requirements.
- Compute coordinates for field staking.
- Once again, consider if visual simulations will be helpful or necessary for community input and buy-in.

The centerline survey establishes points representing the designed control line by transferring to the ground the alignment information furnished by the plans. The relative accuracy of the centerline survey must be not less than Third Order, Class II (1:5,000). The centerline survey may be by radial surveying using a "total station" instrument. Points along the control line must be at maximum 30 meter increments and include PS, PC, PSC, PSS, PCS, and PT points.

On rehab projects, cross-section possible widening areas for additional pavement. Check superelevations and structure clearances. On concrete rehab projects, locate spalled or delaminated sections and identify joints to be repaired.

Product

Digital Terrain Model (See Activity 02D)
Alignments
A control line established on the ground from which additional information may be obtained to refine the design
Field notes from field review

Distribution

Project Manager (Letter only)
Project Design Engineer

Activity Checklist

Tasks:

- Develop horizontal alignment
- Develop vertical alignment
- Compute coordinates of horizontal alignment
- Establish control line on ground
- Region Preconstruction Engineer reviews alignments to verify that appropriate standards are met.
- Project Manager, Region Preconstruction Engineer, and Design Engineer conduct field review.
- Project Manager, Region Preconstruction Engineer, Design Engineer, and Public Involvement Coordinator discuss need for visual simulation.

Input:

- Mapping
- Project Concept Report

Potential Contacts

Agencies	Information Requested
Federal agencies: Bureau of Land Management Forest Service National Park Service	Permission to enter
State Land Board	Permission to enter
Indian Nations	Permission to enter
Railroads	Permission to enter Railroad geometrics or data Right-Of-Way
Private Property Owners	Permission to enter

Obtain Preliminary Utility and Railroad Information

Activity # 16D

Overview

Notify utility and railroad companies located in the proposed project corridor of the intended project by the Region Utility/Railroad Engineering Coordinator. Request the utility and railroad companies to provide UDOT with updated plans of their facilities.

Responsibility

Region Utility/Railroad Engineering Coordinator

Description

- The Region Utility/Railroad Engineering Coordinator provides preliminary plans to the utility and railroad companies.
- The utility and railroad companies provide their utility plans showing what utilities are within the project limits.

Product

Utility and Railroad Location Plans

Distribution

Project Design Engineer
Project Manager

Activity Checklist

Tasks:

- ‘ Distribute a copy of Concept Report and plans to all utility and railroad companies.
- ‘ Region Utility and Railroad Engineering Coordinator requests utility and railroad companies to provide plans showing what utilities are within project limits, and include a due date when information is required.
- ‘ Collect all information from utility and railroad companies for the project area.

THIS PAGE IS INTENTIONALLY BLANK

Develop Right-of-Way Plans

Activity # 19D

Overview
Develop Right-of-Way plans, maps, and documents.

Responsibility
Region Right-of-Way Engineer

Description
- Develop Right-of-Way Plans, Ownership Records, Office Copies and Summaries required for the acquisition of land and easements for a highway.
- Develop instruments for the transfer of existing highway or frontage road to local jurisdiction.
- The Project Manager, together with the project team, provides critical parcels to the Right-of-Way team early in the process.

Product
Right-of-Way plans
Ownership Records
Office Copies
Descriptions
Summaries for Review

Distribution
Project Files

Activity Checklist

Tasks:

- Develop the right-of-way plans employing the base map with its topography and approved alignments.
- Plot on the base map the adjusted and rotated section and monument lines and subdivisions to highway.
- Perform "Stage One Review" of development of above tasks 1 and 2 by Region Right-of-Way Engineer.
- Plat property descriptions, fitting them into the property matrix and rotating to highway. Determine true conflicts and "As-Occupied" fence boundaries.
- Develop a total tract map for controlled-access highways, showing entire outlines of properties and existing roads, streams, canals, railroads and other features affecting access to those properties.
- Draft an Ownership Record and assign a number for each property affected by the highway, showing all recording references.
- Plot highway slope lines on the plan sheets and design uniform right-of-way lines to the alignment and relative to the slope limits.
- Perform "Stage Two Review" of development of tasks 4, 5, 6, and 7 by Region Right-of-Way Engineer.
- Calculate the dimensions, area of takings and remainders of each parcel of taking now defined by the right-of-way lines intersecting the property lines. Add to the assigned ownership number, as determined by the type of take required, a designated number or alphabet letter.
- Prepare Office Copies showing the parcel number, landowner, description, clauses, credits, etc, and post information on the Right-of-Way Summaries.
- Using the macros from the computer, build the legal right-of-way instruments (deeds).

Tasks, continued

- Prepare a copy of Right-of-Way Plans, Deeds, Agreements, and correspondence with property owners. After the Project is advertised, submit to the Construction Resident Engineer through the Region Preconstruction Engineer.
- Prepare instruments, maps, etc. for the Attorney General Support Engineer to prepare documents following Policy 07-60 for transfer of existing highways or frontage roads to local governments.
- Prepare Right-of-Way survey plat in accordance with Utah Code 17-23-17. Coordinate with Project Design Engineer and Region Construction Engineer to determine certification requirements (contract or in-house).
- Prepare Right-of-Way control drawings showing:
  - Summary of all Right-of-Way Markers, including project coordinates for each Right-of-Way Marker for all P. I.'s, P.C.'s, P.T.'s, angle points, and other locations where Right-of-Way markers are to be set per Standard Drawing 724-1
  - Ties to each adjacent Section Corner and local City or County Survey monument
  - Include copies of the survey control drawings in the construction drawings, with copies to the Region Right-of-Way Engineer and the Central Right-of-Way Review Engineer
- Give thirty (30) days' notice to the local city and/or county surveyor advising them of any monuments within or adjacent to the UDOT right-of-way, which may be destroyed during construction.
- Prepare estimate of R/W costs.
- Right of Way estimate.

Input:

- Design sheets with alignments, curve data, and topography
- Subdivision plats, BLM survey plats and notes, Area Reference Maps, City Survey Information, GLO plats, etc.
- Current County Ownership Plat Maps
- Title Search for current owner and secure deeds of record
- Designated type of facility (N/A, L/A or R/W)
- Existing right-of-way plans and documents
- Aerial maps, railroad maps
- Mitigation and hydraulic plans
- Structure activity
- Cut and fill slope lines
- Type of purchase (relocations, state grounds, R/W, etc.)
- Calculations, traverses, copies of alignments

Potential Contacts

- Federal agencies
- County surveyor
- County Recorder
- Hydraulics, Structures, Utilities
- Railroad Companies
- Attorney General's Office
- Chief, Right of Way Division
- Bureau of Indian Affairs
- Indian Nations
- Landowners
- Local Agencies

Additional References

- UDOT Standard Drawing Numbers 110, 815-1, 815-2, 815-3, etc.
- UDOT Policy and Procedure
- UDOT Right-of-Way Manual, Part 10
- UDOT Roadway Design Manual, Part 6
- Clark on Surveying and Boundaries by Grimes
- Evidence and Procedures for Boundary Location by Brown
- Black's Law Dictionary by West
- UDOT Standard Specifications
- UDOT Regulations for the Control and Protection of State Rights-of-Way
- Restoration of Lost or Obliterated Corners and Subdivision of Sections by U.S.
- Department of the Interior
- Mineral Survey Procedures Guide by U.S. Department of the Interior
- Field Engineering by Wiley
- Manuals relating to State Coordinate Systems
- Acquisition for Right-of-Way by AASHTO

Conduct Roadway Geotechnical Investigation

Activity # 22D

Overview
Conduct all drilling and soil sampling.

Responsibility
Geotechnical Engineer

Description
The Project Manager, Region Engineer, Geotechnical Designer, a Geotechnical Review team, and the drilling geologist hold a meeting to:

- Review the concept report
- Evaluate site conditions
- Establish a conceptual settlement or slope stability mitigation plan
- Establish a subsurface drilling and soil testing plan.
- Evaluate cut and fill slopes
- Establish a field reconnaissance plan

Conduct drilling and soil sampling necessary to provide design recommendations for mitigation of slope/soil stability problems and subsurface soil consolidation (settlement) problems caused by roadway embankment construction.

Prepare generalized soil boring logs and other charts and graphs as required.

Product
Soil Boring Logs

Distribution
None

Activity Checklist

Tasks:

- Obtain required approval from Resource Agencies
- Conduct utility investigation (Blue Stake)
- Conduct drilling
- Prepare drill log
- Obtain soil samples

Input:

- Preliminary Plans
  - Horizontal Alignment
  - Vertical Alignment
  - Concept Report
- Material Quantity Requirement Estimate
- Environmentally Sensitive Sites
- Geologic Maps
- Quad Sheet

Potential Contacts

Agency	Information Requested
Federal Agencies: Bureau of Land Management Forest Service National Park Service	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Natural Resources Conservation Service	Soil Characteristics
State Land Board	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Utah Division of Natural Resources	Old Mine Sites Drill Sites
Indian Nations	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Utilities	Buried Utilities (Blue Stake)
Railroads	Permission to enter
Personal Property Owners	Permission to enter
Division of Wildlife Resources State Engineer's Office U. S. Army Corps of Engineers U. S. Bureau of Reclamation U. S. Fish and Wildlife Service	Permission to Access Potential Environmentally Sensitive Sites

Additional References

- Soils and Foundations Workshop Manual, 2nd Edition, FHWA 1993
- AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing
- ASTM: Annual Book of ASTM Standards:
  - Volume 04.02 Concrete and Mineral Aggregates
  - Volume 04.08 Soil and Rock; Dimension Stone; Geosynthetics

THIS PAGE IS INTENTIONALLY BLANK

Conduct Roadway Geotechnical Testing

Activity # 23D

Overview
Conduct laboratory soil testing.

Responsibility
Geotechnical Test Engineer

Description
- Conduct all laboratory soil testing as requested by the Geotechnical Design Engineer to provide design recommendations for mitigation of slope/soil stability problems and subsurface soil consolidation (settlement) problems caused by roadway embankment construction.
- Prepare a summary of test data and other charts and graphs as required.

Product
Soil Test Report

Distribution
Geotechnical Design Engineer

Activity Checklist
Tasks:
‘ Conduct soil tests
‘ Prepare test reports

Input:
‘ Soil Logs
‘ Samples

Additional Reference
‘ Soils and Foundations Workshop Manual, 2nd Edition, FHWA 1993
‘ AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing
‘ ASTM: Annual Book of ASTM Standards:
Volume 04.02 Concrete and Mineral Aggregates
Volume 04.08 Soil and Rock; Dimension Stone; Geosynthetics

THIS PAGE IS INTENTIONALLY BLANK

Conduct Roadway Geotechnical Design

Activity # 24D

Overview

Conduct field reconnaissance and make recommendations for cut and fill slope design. Conduct geotechnical analysis.

Responsibility

Geotechnical Design Engineer

Description

- Conduct field reconnaissance, including geological mapping of slopes.
- Establish a drilling, sampling, and soil testing program.
- Conduct geotechnical analysis.
- Prepare geotechnical report, which includes design recommendations, generalized soil boring logs, a summary of test data, and other charts and graphs as required.

Products

Geotechnical Report
Soil Boring Logs

Distribution

Region Materials Engineer
Project Manager (file)

Activity Checklist

Tasks:

- Review previous project materials designs
- Submit soil testing program
- Develop compaction factors
- Identify cut and fill slope requirements
- Prepare geotechnical report

Input:

- Drill Logs
- Lab Test Results

Additional References

- Soils and Foundations Workshop Manual, 2nd Edition, FHWA 1993
- AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing
- ASTM: Annual Book of ASTM Standards:
  Volume 04.02 Concrete and Mineral Aggregates
  Volume 04.08 Soil and Rock; Dimension Stone; Geosynthetics

Prepare Draft Environmental Document

Activity # 25D

Overview

Prepare Draft Environmental Document. Guidance for the preparation of this document is obtained in the Environmental Process Manual. Commitments made to stakeholders to gain acceptance for the project from the Project Concept Meeting, the Scoping meeting, and the NEPA Scoping/Public Involvement/Agency Coordination Process should be included in this document.

Responsibility

Region Environmental Engineer

Description

- Develop the purpose and need for action, discuss alternatives, describe the affected environment, identify the probable beneficial and adverse effects of alternatives, and describe proposed mitigating measures necessary to ensure the project is compatible with the natural and built environment.
- Utilize the public involvement plan.
- Input received from stakeholders is considered in developing the preferred alternative(s) (a context sensitive solution).

Product

Draft Environmental Impact Statement (Class I project)
Draft Environmental Study (proposed Class II project) (For projects which require Public Hearings)
Categorical Exclusion (Class II project) (For projects which do not require Public Hearings) -- submit for Final Environmental Document approval
Draft Environmental Assessment (Class III project)

Distribution

Environmental Division
FHWA
Others (As listed in T6640.8A)
Project Manager

Activity Checklist

Tasks:

Prepare the Draft Environmental Document in accordance with the Environmental Process Manual of Instruction

Input:

- FHWA Technical Advisory T6640.8A (October 30, 1987)
- Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 CFR 1500-1508)
- FHWA's Environmental Impact and Related Procedures (23 CFR 771), and other environmental statutes and orders (see Appendix A in T6640.8A), as applicable
- Commitments made to stakeholders in Planning Phase (Project File).
- Concept Report
- Minutes of NEPA Scoping/PI/Agency Coordination Meetings
- Reports from "Conduct Preliminary Environmental Review," "Conduct Concept Meeting and Develop Report," and "Initiate NEPA Scoping/PI/Agency Coordination."

Potential Contacts

Agency	Information Requested
Federal Agencies such as: U.S. Fish and Wildlife Natural Resources Conservation Service Army Corps of Engineers Bureau of Land Management U.S. Forest Service National Park Service Federal Highway Administration Environmental Protection Agency Others	Clearance Coordination
State Agencies such as: State Parks Division of State History State Lands and Forestry Division of Environmental Quality Division of Water Rights Division of Water Resources Bureau of Water Quality Division of Wildlife Resources Others	Clearance Coordination
Local Government Entities	
Private Entities such as: Interest groups Property owners Others	Coordination
Bureau of Indian Affairs: Indian Nations	Clearance Coordination

THIS PAGE IS
INTENTIONALLY
BLANK

Develop Pavement Design

Activity # 28D

Overview
Develop pavement design

Responsibility
Region Pavement Engineer

Description
- Develop a testing strategy consistent with the project concept. Coordinate testing activities to obtain required data.
- Conduct pavement scoping meeting(s) to develop pavement design strategy.
- Conduct centerline soil survey report.
- Develop feasible pavement design options.
- Conduct engineering and economic analysis for each option. Select the best pavement option.
- Submit the pavement design recommendation to the Region Materials Engineer for concurrence.

Product
Approved Pavement Design

Distribution
- Region Materials Engineer
- Project Manager Distribute to Project Design Engineer

Activity Checklist

Tasks:

- Pavement scoping meeting
  - Testing Strategy
  - Proposed design life
  - Additional testing required from testing strategy
  - Potential material sources

- Testing
  - Core and trench for thickness and condition of existing pavement
  - Extraction/gradation on cores
  - Strength and stripping tests
  - Trench for sub base and sub grade samples
  - Concrete pavement evaluation
  - Falling Weight Deflectometer testing

- Centerline Soil Survey Report
  - California Bearing Ratio
  - Soil Classification-Plastic Limit
    - Liquid Limit
    - Plastic Index
  - Soluble Salts
  - Resistivity
  - pH

- Identify and determine mode(s) of failure-existing pavement.
- Identify potential material sources for the project. Work with Region Environmental Engineer, BLM, Dept. of Forestry and others to obtain clearance.
- Develop pavement design options to be evaluated.
- Develop engineering and economic analysis of options.
- Select and design best option.

Input:

- Annual maintenance costs, type of repair
- Concept report
- Horizontal and vertical alignment
- Geotechnical study
- Scoping Meeting Report
- Equivalent Single Axle Load, (ESALs) from Program Development, Planning Statistics

Prepare and Request Design Exceptions

Activity # 31D

Overview
Prepare request for Design Exceptions and submit it to the Preconstruction Engineer for approval.

Responsibility
Project Design Engineer

Description
All design elements that do not meet UDOT and/or AASHTO design standards require a design exception approved by the Preconstruction Engineer

- Submit the Design Exception request on the UDOT Standardized form with supporting documentation after the Scoping Meeting has been held.
- Evaluate the effects of the variance on the safety and operation of the facility in the documentation to justify retention of a substandard feature. Consider the following three issues in the analysis:
    1. To what degree is the standard being reduced?
    2. Will the exception affect other standards?
    3. Are there any features being introduced to mitigate the design deviation?

Product
Design Exception Request with supporting data

Distribution
Preconstruction Engineer
Project Manager
Region Preconstruction Engineer

Activity Checklist
Tasks:

- Complete Design Exception Request forms (see Appendix)
- Region Preconstruction Engineer and Project Manager review Design Exceptions
- Preconstruction Engineer and FHWA review and approve Design Exceptions, where applicable.

THIS PAGE IS INTENTIONALLY BLANK

Develop Initial Roadway Plans

Activity # 34D

Overview

Prepare initial alternative alignments using base plans from concept activity and conduct initial field inspection. Assemble initial roadway plans for preferred alternative after its selection. The Project Design Engineer must incorporate all mitigation measures proposed in the environmental document into the roadway plans. The plans should incorporate the principles of Context Sensitive Solutions by addressing the transportation need, being an asset to the community, and being compatible with the natural and built environment.

Responsibility

Project Design Engineer

Description

- Develop initial plans for all prudent and feasible alignment alternatives within the corridor. Include in the initial plans topography, horizontal and vertical alignment, typical sections, and detailed interchange and intersection designs.
- Distribute plans to appropriate divisions for comment and visit the site as needed.
- As appropriate, develop initial signing, striping and traffic control plans for each alternative alignment including the required Major Items of Work and Traffic Control Plan.
- Specify pavement-marking type based on Operation Engineer's "Plan for Every Section" for all projects including small intersection type projects. Any deviations from the "Plan for Every Section" must have Operation Engineer approval.
- Prepare a Phasing Plan placing great importance upon safety and convenience of the traveling public, and worker safety.
- Evaluate detours and impacts on areas within and outside the project limits. The Project Design Engineer includes in the package all specialty plans, hydraulic plans, utility and railroad plans, and Situation and Layout Sheets.
- Ensure plans comply with the commitments made to stakeholders.
- Create visual simulations if deemed necessary in earlier phases.
- For design changes seek acceptance from stakeholders that are sufficient to keep the project moving forward.

Product

All maps, drawings, visual simulations, etc. of all prudent and feasible alternatives for use in the public hearing process.
An initial roadway plan package without summary sheets.

Distribution

Project Manager
Region Preconstruction Engineer
Region Utility/Railroad Engineering Coordinator
Region Traffic Engineer
Project Landscape Architect
Structures Division
Region Environmental Engineer

Activity Checklist

Tasks:

- Develop Initial Roadway Plans
  - Lay out all feasible alignment alternates using base mapping
  - Develop typical sections and details
  - Develop Traffic Management Plan
  - Develop Signing and Striping Plans
  - Prepare Title Sheet, Standard Drawing Index Sheet, Plan Index Sheet
  - Coordinate with Bicycle and Pedestrian use.

Input:

- Project Scoping Report
- Concept Plans
- Field survey topography data and/or aerial mapping
- Land use studies
- Pavement design
- Utility and/or railroad location maps
- Initial hydraulic and hydrologic information
- Geotechnical report
- Existing sign inventory
- Pavement Marking Type Determination
- Pedestrian use areas
- Value Engineering Analysis
- Minutes of Public Involvement meetings
- Draft Environmental Document
- American Disabilities Act
- Commitments made to stakeholders

Potential Contacts

- Federal Agencies
  - Federal Highway Administration
  - USDA--Forest Service
  - Bureau of Reclamation
  - Bureau of Land Management
  - National Park Service
  - U. S. Fish and Wildlife
  - U. S. Natural Resources Conservation Service
  - Bureau of Indian Affairs
  - Internal and external stakeholders

- State Agencies
  - State Land Board
  - State Parks and Recreation
  - Local Governments
  - Utah Travel Council
  - Law Enforcement
  - Local Emergency Services
  - Region Operation Engineer
  - Maintenance Station Supervisors

- Other
  - Indian Nations
  - Irrigation Companies
  - Property Owners

THIS PAGE IS INTENTIONALLY BLANK

Develop Initial Hydraulic Plans

Activity # 37D

Overview

The plans should incorporate the principles of Context Sensitive Solutions by addressing the transportation need, being an asset to the community, and being compatible with the natural and built environment and commitments made to stakeholders are addressed.
Complete the preliminary hydraulic design for the project, which includes:

- Making a field review
- Preparing hydraulic computation
- Determining size and placement of hydraulic structures
- Addressing environmental mitigation issues relating to hydraulics

Responsibility

Project Design Engineer

Description

- Prior to proceeding with the technical hydraulic design, the Project Design Engineer and the Region Hydraulics Engineer conduct a field review of the project site. During this review they determine the scope of work, identify the hydraulic design considerations and agree upon concepts.
- If major hydraulic structures are required, the Region Hydraulics Engineer may consult with the Chief Hydraulics Engineer regarding the design proposals.

Determine preliminary sizes, and show and label locations for all drainage structures (pipes, box culverts, bridges, etc.) on plan and profile sheets. Prepare hydraulic computations including values for total runoff, culvert/ditch capacity, hydraulic gradeline, backwater depth, scour analysis, and any other applicable items. For all major hydraulic structures, submit hydrologic and hydraulic computations to Region Hydraulics Engineer.

Design and show on the plans temporary as well as permanent erosion control measures. Such measures may include detention and diversion structures, bank and channel stabilization, sediment control, energy dissipation devices, landscaping and seeding. The Project Design Engineer and Region Hydraulics Engineer agree upon the Stormwater Pollution Prevention Plan and include it in the plans.

Product

Hydrologic and hydraulic computations and plans
Stormwater Pollution Prevention Plan

Distribution

Region Hydraulics Engineer
Project Manager

Activity Checklist

Tasks:

- Conduct Field Review

- Hydrologic Design
  - Determine method of analysis and design frequency
  - Verify Design Concept with the Region Hydraulic Engineer (QC Process)

- Hydraulic Design of:
  - Bridges
    - Water Surface Profiles
    - Bridge Opening Geometry
    - Bridge Backwater Analysis
    - Erosion Control Features and Details
    - Scour Depth of Abutments and Piers
    - Storm Water Pollution Plan Sheet
    - Energy Dissipators

  - Pipe Box Culverts
    - Sizes, Design Flow Rates
    - Water Surface Profiles
    - Surface/Small Ditch Design
    - Erosion Control Features and Details
    - Storm Water Pollution Plan Sheet
    - Energy Dissipators

  - Storm Drain
    - Catch Basin/Cleanout Box Types and Locations
    - Detention/Retention Ponds
    - Mitigation for Point Source Discharge
    - Storm Water Pollution Plan Sheet
    - Energy Dissipators

  - Channel Changes
    - Erosion Control Features and Details
    - Storm Water Pollution Plan Sheet
    - Storm Drain Hydraulic/Energy Grade Line
    - Energy Dissipators

Activity Checklist, continued

Input:

- Concept plans
  - Typical Section
  - Horizontal Alignment
  - Vertical Alignment
  - Cross-Sections
  - Soil pH and Resistivity
- Topography Sheets and Contour Maps
- UDOT Manual of Instruction for Roadway Drainage
- Project Concept Report
- Environmental Commitments
- Commitments made to stakeholders

Potential Contacts

- Utah Department of Transportation
  - Chief Hydraulics Engineer
  - Region Hydraulics Engineer
  - Region Utilities Section
  - Environmental Division
  - Structures Division
  - Region Materials Engineer
  - Region Operations District Engineer/Maintenance and Operations Engineer
  - Public Involvement Coordinator

- Federal Agencies
  - U. S. Army Corps of Engineers
  - Federal Highway Administration
  - U. S. Fish and Wildlife Service
  - U. S. Natural Resources Conservation Service
  - Federal Emergency Management Agency
  - U. S. Environmental Protection Agency

- State Agencies
  - Division of Water Quality
  - Division of Water Rights
  - Division of Wildlife Resources

- Local Municipalities
  - Cities and Counties
  -

THIS PAGE IS INTENTIONALLY BLANK

Design Public Involvement

Activity # 38D

Overview

Revise the Public Involvement Plan to allow for public acceptance of changes in the project. Identify and address the concerns of stakeholders throughout the project. Design Public Involvement ensures that commitments made to stakeholders are incorporated into the design.

Responsibility

Public Involvement Coordinator

Description

- With the assistance of the Project Manager, confirm the stakeholders identified in the Concept phase are still valid. Identify any new stakeholders.
- Update the Public Involvement Plan to schedule Public Hearings, Scoping Meetings, and other public gatherings that provide a means for gaining stakeholder acceptance to changes in design.
- Document commitments made to stakeholders for future reference.
- Provide stakeholders with project updates.

Product

- Public Involvement Plan for Design phase.
- Seek the accepted level of acceptance from internal and external stakeholders sufficient to keep the project moving forward.
- Document commitments made to stakeholders.

Distribution

Public Involvement Coordinator
Region Preconstruction Engineer
Region Environmental Engineer
Chief Environmental Engineer
Project Manager
Operations/District Engineer

Activity Checklist

Tasks:

‘ Update Public Involvement Project File.
‘ Update Public Involvement Plan.
‘ Provide a method for two-way communications with stakeholders.
‘ Activate Internet site for project information and updates (if applicable).

‘

THIS PAGE IS INTENTIONALLY BLANK

Media Relations

Activity # 39D

Overview

The Project Manager and the Community Relations Office review the Concept phase Media Relations plan and update it as necessary. An effective media relations plan will promote a better informed public and lead to a more effective dialogue with project stakeholders.

Responsibility

Project Manager

Description

- Confirm the stakeholders identified in the Concept phase are still valid. Identify any new stakeholders.
- Review the project Scope and Schedule. Identify any changes that may affect the Media Relations plan.
- Review the Media Relations plan. Update as necessary.

Product

- An updated Media Relations plan.

Distribution

- Project Manager
- Project File
- Region Public Involvement Coordinator (PIC)
- Community Relations Office

Activity Checklist

Tasks:

‘ Identify changes in stakeholders
‘ Identify changes in project Scope and Schedule
‘ Review Media Relations plan
‘ Update plan as necessary

THIS PAGE IS INTENTIONALLY BLANK

Develop Initial Landscape Plans

Activity # 40D

Overview

Prepare the Initial Wetland Mitigation and Landscape Plans. Prepare irrigation design and plans.

Responsibility

Project Landscape Architect

Description

- Develop landscape plans in accordance with CSS commitments.
- The designer coordinates landscape design with the Project Design Engineer.
- Include in the landscape plans one or more of the following types of design:

Initial Revegetation Plan (Including Wetland Mitigation Plans)

The Revegetation Plan is the next level above Required Erosion Control. It is usually developed as mitigation to meet environmental requirements or other state or federal regulations. Components of the Revegetation Plan include but are not limited to: Temporary Erosion Control, Grading Plans, Irrigation Plans, and Planting Plans.

Initial Landscape Plans

Landscape Plans are usually required within an urban or city project. These projects are based on the same environmental and ecological principles as the preceding levels. Landscape plans can range from assisting in the mitigation of the visual impacts of noise wall, to creating an aesthetic transition between the roadway and surrounding land use.

Initial Site Development Plans

Required for site design development for rest areas and sometimes for Ports of Entry. These designs include but are not limited to: grading, planting plans, irrigation plans, sidewalk layout, site circulation plans (both pedestrian and auto), and lighting plans, bike paths, view overlook, location and placement of picnic tables, site interpretive features, and parking areas.

Product

Initial Landscape Plans

Distribution

Project Design Engineer
Project Manager

Activity Checklist

Tasks:

Comply with the directions and guidelines referenced in the "Manual of Instruction" for Roadway Design, Part 6, Section 6-1000 Landscaping.

Input:

- Elevation
- Areas of disturbance
  - Cut slopes areas
    - cut slopes areas > 1:3 < 1:2
    - cut slopes areas > 1:2 < 1:1.5
    - cut slopes areas > 1:1.5
  - Fill slopes
    - fill slopes > 1:3 < 1:2
    - fill slopes areas # 1:1.5
  - Borrow sites
    - granular material
    - native topsoil
    - wetland topsoil
  - Staging areas
  - Access/haul roads
  - Road obliteration
  - Wetlands
    - acreage
    - type
    - area of mitigation required
- Special considerations
  - Environmental Commitments
- Concept plans
  - Horizontal Alignment
  - Vertical Alignment
  - Typical Sections
  - Utility Plans
- Revegetation Manual
- Commitments made to stakeholders
- Stakeholder acceptance obtained

Potential Contacts

- **Federal Agencies**
  - Army Corps of Engineers
  - Bureau of Land Management
  - National Park Service
  - Natural Resources Conservation Service
    - Plant Materials Centers
    - Region Offices
    - State Offices
  - Federal Highways Administration
  - Environmental Protection Agency
  - Forest Service
  - Department of the Interior
    - Geological Survey
  - U.S. Fish and Wildlife

- **State Agencies**
  - Department of Natural Resources
    - Division of State Lands and Forest
    - Division of Energy
    - Division of Water Resource
    - Division of Wildlife Resource
  - State Engineer's Office
  - State Department of Agriculture
    - Seed Lab
    - Environmental Quality
  - Department of Health
    - Division of Environmental Quality
  - Travel Council
  - Community and Economic Development
  - Utah Arts Council
  - Utah State Extension
  - Utah State Water Research Laboratory
  - Public Involvement Coordinator

- **City Departments/Offices**
  - Public Works Departments
  - Planning and Zoning Departments
  - Urban / City Forester

Potential Contacts, continued

- **Product Supplier**
  - Seed
  - Nurseries
  - Equipment
  - Irrigation
  - Erosion Control
  - Organic Amendments
  - Chemical / Herbicides

- **Professional Organizations / Miscellaneous**
  - Utah Association of Nurserymen
  - Utah Community Forest Council
  - Tree Utah

Develop Initial Signal and Lighting Plans

Activity # 43D

Overview

Design the initial layout of the traffic signal and/or street lighting in accordance with CSS commitments.

Responsibility

Project Design Engineer

Description

- Develop a topographical plan of the intersection or section of highway. Show physical features, right-of-way, utilities and control ties.
- Determine the location, type of operation, and hardware required using simulation and capacity analysis techniques, and street lighting distribution analysis.
- For a traffic signal project, investigate the need for system interconnect. Prepare a drawing using the existing topographic sheet showing:
    - Desired traffic lane configuration, including channelization.
    - Pole location and mast arm length.
    - Number, location, and size of detection.
    - Power source location and requirements.
    - Type and location of signal heads.
    - Number and type of pedestrian signal heads and pedestrian push buttons.
    - All paint striping including lane markings, stop bars, crosswalks, islands, etc.
    - Pertinent notes.
    - Traffic signal controller type and location, including any hardware needed for system interconnect.
    - Intersection street lighting, number, and location.
    - Junction box location.
- For a roadway lighting project, produce a set of drawings using the strip maps with existing topography showing:
    - Pole and luminaire type and location.
    - Junction box locations.
    - Power source location.
    - Pertinent notes.
    - Understructure lighting and details.
    - Substation details.

Product

Initial lighting plans
Initial signal and striping plans

Distribution

Region Preconstruction Engineer
Region Traffic Engineer
Project Manager

Activity Checklist

Tasks:

Traffic Signal

- Design traffic lane configuration, including paint striping and channelization.
- Capacity Analysis -- determine phasing and signal coordination needs.
- Region Traffic Engineer reviews configuration and phasing.
- Determine pole location and arm length.
- Determine number, location and size of detection.
- Determine location and requirements of power source.
- Determine type and location of signal head or luminaire.
- Determine need for and location of pedestrian signal head and push buttons. Reviewed and confirmed by the Region Traffic Engineer.
- Pertinent notes.
- Determine traffic signal controller type and location.
- Determine system interconnect needs.
- Gain stakeholder and public acceptance.

Street Lighting

- Conduct lighting distribution analysis to determine:
  - Luminaire type
  - Mounting height and offset
  - Pole spacing and location
- Prepare plan sheets showing:
  - Pole and luminaire location
  - Junction box locations
  - Power source location
  - Circuit groupings (pole identifying numbers)
  - Pertinent notes
  - Gain stakeholder and public acceptance

Activity Checklist

Input:

- Base Map
  - Topography
  - Control Lines
  - Utilities
  - Right-of-Way
  - Signing and striping plan
- Volume
  - Intersection warrant study
  - Percent trucks
  - Peak hour factors
- Traffic Signal Design Guide
- Commitments made to stakeholders

Potential Contacts

- Power Company ― locate power source
- Local Entities and Utilities
- Program Development
- Public Involvement Coordinator
-

THIS PAGE IS INTENTIONALLY BLANK

Establish Preliminary Utility and Railroad Plans

Activity # 46D

Overview
Incorporate utility and railroad information on roadway plans.

Responsibility
Region Utility/Railroad Engineering Coordinator

Description
- After receiving the latest railroad and utility plans, the Railroad Utility/Railroad Engineering Coordinator works with the Project Design Engineer to place the utility and railroad information on the roadway plans and field verify the horizontal location by observation.

Product
Up to date roadway design plans with accurate horizontal ties for utilities and railroad facilities.

Distribution
Project Manager
Region Utility/Railroad Engineering Coordinator

Activity Checklist
Tasks:
- ‘ Place all utility and railroad ties on the roadway plans.
- ‘ Check horizontal locations of utilities in the field (observation only).

Additional Reference
- ‘ UDOT Mapping and Aerial Photogrammetry Guidelines.

‘

THIS PAGE IS INTENTIONALLY BLANK

Develop Structures Situation and Layout Sheet

Activity # 49D

Overview

Receive request from the Project Design Engineer for a situation layout sheet for a grade separation such as an intersection of two roads, a railroad crossing, a stream crossing, a dry wash, a trail crossing, or any other type of situation that would require a structure. Develop situation and layout sheet that conforms to CSS principles and incorporate the commitments made to stakeholders.

Responsibility

Project Structural Engineer

Description

The request from the Project Design Engineer must be accompanied by the necessary information to prepare a situation and layout sheet including the horizontal and vertical roadway alignment, typical road cross-section, and the profile elevations of all the alignments and cross-sections of channels and railroad sections. If a stream is involved, it is necessary to have the cross-section of the channel plus all the hydraulic information to prepare the situation and layout sheet. Ensure compatibility with the natural and built environment.

- Verify the accuracy of the roadway geometry and alignment in the vicinity of the proposed structure (bridge).
- Verify the possibility of readjusting the geometry to accommodate cost-effective structure designs and adequate clearances both vertically and horizontally.
- After the span length and the structure (bridge) type have been determined, prepare the situation and layout sheet.
- Review the situation and layout sheet for accuracy of the geometry of the proposed alignments, and for compliance with the Engineer's design notes.

Product

Situation and Layout Sheet

Distribution

Assistant Chief Structural Engineer
Project Manager
Project Design Engineer
Chief Geotechnical Engineer
Region Utility/Railroad Engineering Coordinator (if Utilities are involved)
Region Hydraulics Engineer (Hydraulic structure only)

Activity Checklist

Tasks:

- Prepare the Situation and Layout Sheet for the structure
- Design the structure length and the type of structure for the situation and layout sheet
- Detail the situation and layout sheets and ensure the structure is aesthetically pleasing and conforms to the natural and built environment
- Gain stakeholder and public acceptance

Input:

- **Typical Cross-Sections**
  - Cross-section of roadway carried by structure
  - Cross-section of roadway, stream, railroad or facility being crossed
  - Location of control and profile lines as they relate to cross-sections
  - Design speeds for each alignment
  - Clear zone under structure
  - Prior commitments made to stakeholders

- **Plan Sheet**
  - Station ties to all control lines at points of intersection
  - Complete horizontal alignment for roadway carried by the structure including bearings, curve data, coordinates of P.I.'s and stationing
  - Complete horizontal alignment for roadway or facility to be crossed. Including bearings, curve data, coordinates of P.I.'s and stationing. Call attention to the necessity of providing accurate ties to existing roadways, railroads or streams, and any physical characteristics that may have an effect on the geometry of the structure and the approach fills. Field surveys may be required to obtain adequate ties and information
  - Show skew or crossing angle of facilities crossed unless one of the alignments is on a curve
- Profile Sheet
  - Profiles of roadway carried by structure
  - Profiles of facility being crossed
  - Check vertical curve lengths to verify they are adequate for stopping sight distance requirements
- Stream Crossings
  - Fill in and submit hydraulics data sheet. Also submit this form to the Hydraulics Review section on major structures
- Retaining Walls
  - Profiles of the top and bottom of walls
  - Offsets and stations from the control line to walls
  - Location, elevation and size of pipes and other items which go through walls
  - Cross-sections at wall locations

Potential Contacts

- Public Involvement Coordinator
- Project Design Engineer
- Project Manager
- Federal Highway Administration
- Hydraulics Engineer
- Geotechnical Engineer
- Utilities
- Railroads
- Specialty Suppliers

THIS PAGE IS INTENTIONALLY BLANK

Develop Utility and Railroad Plans

Activity # 52D

Overview

The Project Design Engineer updates the project plans obtained from engineering data, and makes any possible modifications on the design plans to avoid unnecessary conflicts.

Responsibility

Project Design Engineer

Description

The Project Design Engineer:

- Reviews the horizontal field survey, designating subsurface utilities, and utility location updates.
- Analyses and adjusts the project plans to avoid any unnecessary conflicts with the utilities and railroads.
- Shows vertical ties on the plans. (Possible vertical conflicts are potholed by subsurface excavating techniques to determine location and the vertical depth of the facility.)
- Verifies that all projects involving utility and railroad relocations within the right-of-way in environmentally sensitive areas, or outside the right-of-way, are noted in the final environmental document.

Product

Corrected project plans showing horizontal and vertical ties to utility and railroad facilities.

Distribution

Project Manager
Region Utility/Railroad Engineering Coordinator
Region Environmental Engineer (when there is potential environmental impact)

Activity Checklist

Tasks:

- Obtain utility and railroad engineering data.
- Review field survey data.
- Modify and adjust plans to avoid unnecessary conflicts.
- Determine remaining conflicts with utilities and pothole for vertical ties, if required.
- Place vertical ties on Project Plans.
- Verify that any environmentally sensitive areas are noted on the plans. Coordinate with the Region Environmental Engineer.
- Prepare plans for the Region Utility/Railroad Engineering Coordinator including:
  - Title Sheet
  - Typical Sections
  - Plan and Profile Sheets
  - Situation and Layout Sheets

Review Roadway Plans/Field Review

Activity # 55D

Overview
Review the roadway plans

Responsibility
Region Preconstruction Engineer

Description
The Region Preconstruction Engineer and project team verify that the roadway plans:

- Have been reviewed
- Are complete and buildable
- Conform to UDOT and AASHTO standards
- Conform to CSS principles

A mandatory field review is included in this review.

Product
Reviewed roadway plans
Minutes of review proceedings and decisions

Distribution
Project Team Members

Activity Checklist
Tasks:

- Region Preconstruction Engineer reviews roadway plans.
- Region Preconstruction Engineer and Project Manager determine project team members.
  - Region construction representative is mandatory.
  - FHWA representative invitation is mandatory on Federal Aid non-stewardship projects.
- Project Design Engineer makes copies of plans and distributes to project team members.
- Project Engineer schedules and conducts field reviews.
- Project Design Engineer documents review proceedings and decisions, and distributes copies to project members.
- Region Preconstruction Engineer and Project Manager resolve design issues.

Potential Contacts

- Public Involvement Coordinator
- Project Manager
- Region Operation/Maintenance Engineer
- Region Materials Engineer
- Region Traffic Engineer
- Region Right-of-Way Engineer
- Region Environmental Engineer
- Region Landscape Architect
- Region Hydraulics Engineer
- Region Utility and Railroad Engineering Coordinator
- Structures Division
- Geotechnical Engineer
- Central Right-of-Way
- Bicycle and Pedestrian Coordinator

Review and Approve Structures Situation and Layout Sheet

Activity # 56D

Overview

Review the situation and layout plan sheet for a major structure, minor structure, structural wall, or bridge rehabilitation.

Responsibility

Chief Structural Engineer

Description

- Verify the geometric layout of the structure including the structure length, width, depth, cross-section, minimum vertical and horizontal clearances, skew, structure type, beam spacing, cross-section of feature crossed, abutment slopes, location of expansion joints, and location of fixed and expansion bearings.
- Verify all information detailed on the situation and layout sheet for accuracy, completeness, and constructability.
- Verify that the design conforms to State and AASHTO standards and specifications.
- Verify conformance with CSS principles.
- Verify that commitments made to stakeholders were incorporated.

Structures on local government projects are reviewed for compliance with applicable AASHTO specifications, when requested.

Product

Approved Structure Situation and Layout Sheet

Distribution

Project Structural Engineer
Project Design Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

‘ Review the Situation and Layout Sheet for the structure

Input:

‘ Completed structure Situation and Layout Sheet
‘ All Input items listed under Activity 49D

Potential Contacts

- Public Involvement Coordinator
- Project Structural Engineer
- Hydraulics Engineer
- Geotechnical Engineer
- Project Design Engineer
- Project Manager
- Region Preconstruction Engineer

Review Major Structure Hydraulic Plans

Activity # 58D

Overview
Verify all previous design assumptions made in the Initial Hydraulic Plans for major structures on the project.

Responsibility
Region Hydraulics Engineer

Description
- Verify all hydraulic design assumptions for major structures at this time including method of analysis, return frequency and existing conditions.

Product
Approved hydraulic design

Distribution
Structures Division (if applicable)
Project Design Engineer
Project Manager

Activity Checklist
Tasks:
- ‘ Verify hydrologic and hydraulic design and calculations.
- ‘ Verify scour depth calculations at abutments and piers.
- ‘ Verify the design of detention/retention ponds or other mitigation for point source discharge of storm water runoff.
- ‘ Review Storm Drain Hydraulic/Energy Grade Line.
- ‘ Review channel changes and water surface profile.
- ‘ Submit approved Hydraulics Report.

Input:
- ‘ Initial Hydrologic Computations
- ‘ Initial Hydraulic Computations
- ‘ Roadway and Drainage Plans
- ‘ Initial Hydraulics Report

Potential Contacts
- ‘ Project Design Engineer
- ‘ Project Manager
- ‘ Region Preconstruction Engineer
- ‘ Chief Hydraulics Engineer

THIS PAGE IS INTENTIONALLY BLANK

Prepare and Submit 404, Discharge, and Stream Alteration Permits

Activity # 61D

Overview
Prepare and submit appropriate permit applications.

Responsibility
Region Environmental Engineer

Description
- In accordance with the Environmental Document, prepare and submit the necessary plans to the Department of Water Quality to obtain a point source discharge permit, the 404 Permit Application and Stream Alteration permits Application to the appropriate agencies.
- The CONTRACTOR prepares and submits the UPDES Notice of Intent for storm water discharges from construction sites.
- Follow the Activity Checklist of requirements.

Product
Complete applications

Distribution
Project File
Project Manager (letter only)
Project Design Engineer

Activity Checklist
‘ Prepare and submit permit applications in accordance with the Environmental Process Manual of Instruction.

Potential Contacts
‘ U.S. Army Corps of Engineers for 404 permits
‘ Utah Division of Water Rights for 404 permits and/or Stream Alteration permits
‘ U.S. Fish and Wildlife Service for 404 permits and/or Stream Alteration permits
‘ Utah Division of Wildlife Resources for 404 permits and/or Stream Alteration permits
‘ Utah Division of Water Quality for UPDES permits
‘ Environmental Division for 404 and UPDES permits
‘ Project Landscape Architect for 404 and UPDES permits

THIS PAGE IS INTENTIONALLY BLANK

Prepare for and Hold Location Public Hearing

Activity # 64D

Overview

After determining that a Public Hearing is required following the Public Involvement/Public Hearing Procedures Manual, the Project Manager decides whether the requirement can best be satisfied by holding a hearing or by offering the opportunity for a hearing.

Responsibility

Project Manager

Description

- The purpose of a Public Hearing and related Public Involvement Procedures is to provide for an open exchange of information and ideas between the public and transportation decision makers. Effective public involvement should result in an open exchange of technical information and ideas, collaborative input on alternatives, and mitigation options. Refer to Environmental Process Manual, "Public Involvement."
- Coordination with the Public Involvement Coordinator is required to ensure uniformity of hearing format, content, and conduct.

Product

Transcript of the hearing proceedings
Comments on draft environmental document

Distribution

Utah Transportation Commission
Region Director
Region Environmental Engineer
FHWA
Region Preconstruction Engineer
Project Design Engineer
Others per list maintained by the Project Manager
Project File

Activity Checklist

Tasks:

Public Involvement Coordinator:

- Identify and inform public of date, time, and location of hearing a minimum of two weeks prior to the Public Hearing.

Project Manager:

- Refer to the Environmental Process Manual of Instruction
- Prepare for and hold Public Hearing

Input:

- Draft Environmental Document
- Permission received from FHWA (for Federal-Aid projects) to circulate the environmental document and proceed to satisfy the public involvement requirements.

THIS PAGE IS INTENTIONALLY BLANK

Prepare Final Environmental Document

Activity # 67D

Overview

Incorporate changes in the proposed action or mitigation measures that resulted from comments received on the draft environmental document during the public involvement, agency coordination, and public hearing process. Present any necessary findings, agreements, or determinations required for the proposed action. Include pertinent comments received and demonstrate that these comments were considered.

Obtain a resolution of acceptance from the Utah Transportation Commission for the alternative to be presented in the final environmental document. For Local Government projects, a letter of acceptance from the local jurisdiction must precede the Commission resolution.

Responsibility

Region Environmental Engineer

Description

The final environmental document identifies the alternative selected after taking public comment into account, and evaluates the proposed project in accordance with the most recent National Environmental Policy Act and other guidelines and standards. Document the level of acceptance received from all stakeholders and the commitments made to achieve the endorsements. Refer to the Environmental Process Manual as a guide.

Product

Categorical Exclusion (Class II Project) for which a public hearing has been held.
Final Environmental Impact Statement and Draft Record of Decision (ROD) (Class I project)
Final Environmental Assessment and request for Finding Of No Significant Impact (FONSI) (Class III project)
Transportation Commission Resolution document
Commission Resolution

Distribution

Project Manager (Project File)
Project Design Engineer
Region Construction Engineer
Region Preconstruction Engineer
Chief Environmental Engineer
FHWA
Others (as listed in T6640.8A)

Activity Checklist

Tasks:

- Prepare the final environmental document in accordance with the Environmental Process Manual of Instruction.

Input:

- Draft Environmental Document
- Public Hearing Transcripts

Potential Contacts

- Federal Agencies such as:
  - US Fish and Wildlife
  - Soil Conservation Service
  - Army Corps of Engineers
  - Bureau of Land Management
  - US Forest Service
  - National Park Service
  - Federal Highway Administration
  - EPA
  - Others
- State Agencies such as:
  - State Parks
  - Division of State History
  - State Lands and Forestry
  - Division of Environmental Quality
  - Division of Water Rights
  - Division of Water Resources
  - Bureau of Water Quality
  - Division of Wildlife Resources
  - Public Involvement Coordinator
  - Others
- Local Government Entities
- Private entities such as:
  - Interest groups
  - Property owners
  - Others

Additional References

- FHWA Technical Advisory T~~A~~6640.8A [October 30, 1987]
- Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 CFR 1500-1508)
- FHWA's Environmental Impact and Related Procedures (23 CFR 771), and other environmental statutes and orders (see Appendix A in T~~A~~6640.8A), as applicable.

Review Landscape Plans

Activity # 70D

Overview
Review initial landscape plans for conformance to CSS principles.

Responsibility
Region Landscape Architect

Description
- Arrange for an independent review and provide written comment on initial roadway landscape plans:
  - Address the principles of CSS
  - Address conformance with the commitments made to stakeholders
  - Temporary Erosion Control Plans
  - Landscape Plans ─ grading, planting, irrigation, seeding
  - Architectural Enhancements
  - Site Development Plans
  - Conformance to Department/Interagency Requirements

Product
Reviewed Landscape Plans

Distribution
Project Design Engineer
Region Landscape Architect
Project Manager

Activity Checklist

Tasks:

Comply with directions and guidelines referenced in the "Manual of Instruction" for Roadway Design, Part 6, Section 6-1000 Landscaping.

- Review concept development
- Review plant palette and densities
- Review seeding schedule(s) for environmental suitability
- Review erosion control plan
- Review revegetation plan
- Review landscape plan
- Grading plans
  - Check for accuracy
- Planting plans
  - Check for proper symbols, line weights, etc.
- Irrigation plans
  - Check:
    - Hydraulic calculations
    - Line sizing
    - Pressure loss or gain
    - Wiring sizing
    - Valve sizing
    - Back flow prevention
    - Appropriateness of components
    - Irrigation time schedule
  - Review areas shown for topsoil salvage
  - Review borrow pit areas
  - Review visual assessment
  - Review restoration grading plan
  - Review planting plan
  - Review seeding schedule
  - Provide written/oral comments

Input:

- Centerline soil analysis
- Soil type/characteristics pH
- Topsoil hydroscopic analysis
- EC--Electrical Conductivity
- SAR--Sodium Absorption Rate
- Soil color
- Elevation

Activity Checklist, Continued

Input, continued:

- Areas of disturbance
  - Cut slopes areas
    - cut slopes areas > 1:3 < 1:2
    - cut slopes areas > 1:2 < 1:1.5
    - cut slopes areas > 1:1.5
  - Fill slopes
    - fill slopes > 1:3 < 1:2
    - fill slopes areas < 1:1.5
  - Borrow sites
    - granular material
    - native topsoil
    - wetland topsoil
  - Staging areas
  - Access/haul roads
  - Road obliteration
  - Wetlands
    - acreage
    - type
    - acres of mitigation required
  - Hydraulic analysis
  - Depth to water table
    - summer
    - fall
    - spring
  - Irrigation supply--pressurized
    - water type
      - culinary
      - irrigation
      - reclaimed
    - P.S.I.

Activity Checklist, continued

Input, continued:

- Supply line
  - pressures
    - peak
    - low
  - approved hours for use
- Special considerations
- Draft Design Study Report
  - Environmental Commitments
  - Required actions/ commitments:
    - heritage trees
- Permits and conditions (applications if not approved)
  - 404 Permit
  - 4F
- Preliminary plans
  - Horizontal Alignment
  - Vertical Alignment
  - Typical Sections
- Utilities / Easements / Lighting
  - Buried Utilities
    - Gas
    - Water
    - Electricity
    - Telephone
    - Cable T.V.
    - Sewer
  - Above Ground / Overhead Utilities
    - Electricity
    - Cable T.V.
    - Overhead Lighting

Potential Contacts

- Public Involvement Coordinator

Review Signal and Lighting Plans

Activity # 73D

Overview
Detail review of signal and\or lighting plans.

Responsibility
Region Traffic Engineer

Description
Review of preliminary plans prepared by Project Design Engineer to include the following items:

- Review compliance with the commitments made to stakeholders and the principles of CSS
- Review capacity analysis.
- Review street lighting design.
- Review geometrics.
- Review traffic signal design.
- Review right-of-way requirements.
- Review signing and striping plans.

Product
Reviewed Signal and Lighting Plans

Distribution
Project Design Engineer
Region Preconstruction Engineer
Project Manager

Activity Checklist
Task:

‘ Review plans for signal and lighting

Input:

‘ Traffic signal and lighting proposed plans.
‘ Lighting distribution analysis.
‘ Traffic volumes and truck percents.
‘ Capacity analysis.
‘ Initial striping and signing plans

Potential Contacts
‘ Public Involvement Coordinator
‘ Project Manager
‘ Project Design Engineer

THIS PAGE IS INTENTIONALLY BLANK

Conduct Utility and Railroad Field Review

Activity # 76D

Overview
Schedule, conduct, and document a field review of project plans.

Responsibility
Region Utility/Railroad Engineering Coordinator

Description
- Hold a field review to verify that all utility and railroad information is properly shown on the project plans.
- After the field review is held, the Region Utility/Railroad Engineering Coordinator prepares a report of the review and the Project Design Engineer updates all project plans. The Project Design Engineer provides copies of the title sheet, plans, profiles, and typical section sheets that affect the utility and railroad facilities within the limits of the project.

Product
Field Review Report
Utility Plans

Distribution
Project Manager (report only)
Project Design Engineer (report)

Activity Checklist
Tasks:
- Region Utility/Railroad Engineering Coordinator schedules field review with affected utility/railroad companies, Project Design Engineer, and Project Manager.
- Receive comments during the field review.
- After the field review, prepare and submit the report to the Project Design Engineer and the Project Manager.
- Project Design Engineer makes any necessary corrections to the plans.
- Make full-size reproducible plans of the updated title, typical section, plan and profile sheets, and any structure sheets that may affect Utility and Railroad facilities, and submit the project plans to the Region Utility/Railroad Engineering Coordinator.

THIS PAGE IS INTENTIONALLY BLANK

Public Comments on Final Environmental Impact Statement

Activity # 79D

Overview

Document and address comments received on the Final Environmental Impact Statement (FEIS). Prepare the Final Record of Decision (ROD).

Responsibility

Region Environmental Engineer

Description

The Record of Decision (ROD)

- Summarizes the commitments made to stakeholders
- Explains the reasons for the project decision
- Summarizes any mitigation measures that will be incorporated in the project
- Documents any required Section 4(f) approval. Identify and give appropriate responses in the ROD to all substantive comments received on the FEIS.

Summarize other comments and responses provided where appropriate. Incorporate any resulting changes made in the final ROD, as specified in FHWA Technical Advisory T6640.8A.

Product

Record of Decision (Class I project)

Distribution

Project Manager
Chief Environmental Engineer
Transportation Commission
FHWA
Others as indicated in T6640.8A.

Activity Checklist

Tasks:

Record of Decision (ROD)

‘ Prepare and submit the Record of Decision to FHWA in accordance with the Environmental Process Manual of Instruction.

Input:

‘ Draft Record of Decision
‘ Comments received on FEIS
‘ FHWA Technical Advisory T6640.8A [October 30, 1987]

Potential Contacts

‘ Public Involvement Coordinator
‘ Commentors (as appropriate)

THIS PAGE IS INTENTIONALLY BLANK

Obtain Final 404 and/or Stream Alteration and/or UPDES Permit

Activity # 82D

Overview

Track the 404 permit processing through the U. S. Army Corps of Engineers to verify that the 404 permit application is received and processed in a timely manner. Track the Stream Alteration or UDPES Permit through the appropriate agency.

Responsibility

Project Manager

Description

- The Region Environmental Engineer tracks the Discharge Permit and/or 404 Permit process to verify that the permits are completed and received in a timely manner.

Product

Approved 404, UPDES Permit, and/or Stream Alteration Permit

Distribution

Chief Environmental Engineer
Project Manager
Project Design Engineer
FHWA

THIS PAGE IS INTENTIONALLY BLANK

Conduct Initial Structure Soil Investigation

Activity # 85D

Overview

Exploratory holes are drilled and samples retrieved for first week's work. Any soil investigations beyond the first week must be charged as final soil investigation work (see Activity 86D).

Responsibility

Project Geotechnical Engineer

Description

- Verify with Region Environmental Engineer that environmental clearances have been obtained.
- Conduct a utility clearance (Blue Stake). The utility clearance is mandatory for the safety of drill personnel.
- Drill holes at the locations as determined. The drilling geologist follows a standardized format for sampling techniques based on sub-surface conditions. Hole depth is varied based on sub-surface conditions in consultation with the Chief Geotechnical Engineer.

Product

Disturbed and undisturbed soil samples
Field log of borings

Distribution

Submit the soil samples to the Foundations Laboratory.
Submit the log of borings to the Chief Geotechnical Engineer.

Activity Checklist

Tasks:

- ‘ Obtain structures geometric sheet.
- ‘ Check for environmental clearance.
- ‘ Obtain permission to cross or occupy private property.
- ‘ Utility clearance (Blue Stake).
- ‘ Coordinate access roads and drill pads with Region maintenance personnel.
- ‘ Conduct drilling operations.
- ‘ Submit log of borings to Chief Geotechnical Manager.
- ‘ Prepare geologist's report.
- ‘ Obtain approval of Chief Geotechnical Manager.

Additional Reference

- ‘ Subsurface Exploration
- ‘ Drilling Log Form R-353

THIS PAGE IS INTENTIONALLY BLANK

Conduct Final Structure Soil Investigation

Activity # 86D

Overview
Exploratory holes are drilled and samples retrieved for all work beyond the first week's work.

Responsibility
Geotechnical Manager

Description
- Verify with Region Environmental Engineer that environmental clearances have been obtained.
- Conduct a utility clearance (Blue Stake). The utility clearance is mandatory for the safety of drill personnel.
- Drill holes at the locations shown on the plans. The drilling geologist follows a standardized format for sampling techniques based on sub-surface conditions. Hole depth is varied based on sub-surface conditions in consultation with the Chief Geotechnical Manager.

Product
Disturbed and undisturbed soil samples
Field log of borings

Distribution
Submit the soil samples to the Foundations Laboratory.
Submit the log of borings to the Chief Geotechnical Manager.

Activity Checklist
Tasks:
- ‘ Obtain structures geometric sheet.
- ‘ Check for environmental clearance.
- ‘ Obtain permission to cross or occupy private property.
- ‘ Utility clearance (Blue Stake).
- ‘ Coordinate access roads and drill pads with Region maintenance personnel.
- ‘ Conduct drilling operations.
- ‘ Submit log of borings to Chief Geotechnical Manager.
- ‘ Prepare geologist's report.
- ‘ Obtain approval of Chief Geotechnical Manager.

Additional Reference
- ‘ Subsurface Exploration
- ‘ Drilling Log Form R-353

THIS PAGE IS INTENTIONALLY BLANK

Conduct Initial Structural Soil Testing

Activity # 87D

Overview

Test soils for first structure foundation. Any soils testing for additional structures must be reported to Activity 97D "Final Structural Soil Testing."

Responsibility

Project Geotechnical Testing Engineer

Description

- Laboratory personnel conduct tests following applicable AASHTO and ASTM specifications.
- The Project Geotechnical Testing Engineer analyzes test results and prepares applicable charts, and prepares graphs and curves.

Product

Time-settlement and consolidation curves, shear strength curves, work sheets, and a Summary of Test Data, which includes soil gradation, Atterberg Limits, unit weight, and moisture content. Other special test results as required.

Distribution

Project Geotechnical Testing Engineer

Activity Checklist

Tasks:

- ‘ Log in soil samples.
- ‘ Lay out soil samples for visual evaluation.
- ‘ Prepare samples for testing.
- ‘ Conduct testing.
- ‘ Review test result.
- ‘ Produce test result data sheets, curves, and charts.
- ‘ Prepare Summary of Test Data.
- ‘ Distribute test data.

Additional Reference

- ‘ AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing.
- ‘ ASTM: Annual Book of ASTM Standards:
  Volume 04.02 Concrete and Mineral Aggregates
  Volume 04.08 Soil and Rock; Dimension Stone; Geosynthetics.

THIS PAGE IS INTENTIONALLY BLANK

Finalize Design Study Report

Activity # 88D

Overview
Complete the final Design Study Report (DSR).

Responsibility
Project Design Engineer

Description
The Project Design Engineer:

- Assembles the Scoping meeting minutes, minutes of Field Reviews, and approved Pavement Design.
- Reviews the Final Environmental Documentation** and Engineer's Estimate in reference to the Project Plan Sheets for completeness and accuracy.
- Submits one copy of the approved final Environmental Document (required) with the final Design Study Report.
- Provide documentation of commitments made to stakeholders.

** All commitments made during planning and environmental phases will be documented and distribution of all commitments will be made to the following.

Product
Final Design Study Report

Distribution
Region Preconstruction Engineer
Region Maintenance Engineer
Region Construction Engineer
Project Manager

Activity Checklist
Tasks:

- ‘ Finalize Design Study Report
- ‘ Include Field Review Notes
- ‘ Include Operation Safety Report
- ‘ Compare Pavement Design to typical sections
- ‘ Review Project Plan Sheets
- ‘ Include Concept Report
- ‘ Ensure acceptance of stakeholders

Input:

- ‘ Scoping meeting minutes and Engineer's estimate.
- ‘ List of all commitments made in planning, the environmental phase, and community outreach.

Potential Contacts

- Community Relations
- Public Involvement Coordinator

Finalize Landscape Mitigation Plan

Activity # 91D

Overview
Design additional landscape mitigation to satisfy the requirements of the final environmental document, if required, and the commitments made to stakeholders.

Responsibility
Region Landscape Architect

Description
- Develop additional Landscape Mitigation Plans as required by the final environmental document. These plans may include additional Temporary Erosion Control, Grading Plans, Wetland Creation, Irrigation Plans, and Planting Plans.

Product
Final Mitigation Erosion Control Plan
Final Mitigation Revegetation Plan
Final Mitigation Landscape Plan
Final Mitigation Wetland Creation

Distribution
Project Design Engineer
Project Manager
Region Environmental Engineer

Activity Checklist
Tasks:
- Conduct Site Inventory
  - Conduct Plant Transect(s)
- Conduct Site Analysis
  - Determine:
    - Macro / Micro Climates
    - Annual Precipitation / Moisture Regime
    - Site Hydrology
    - Slope Aspects
    - Soil Types
    - Plant Communities
    - Surrounding Land Use (Present /Future)
    - Biotic Cultural Resources
- Review previous project design materials
- Develop concepts
- Determine level of landscape mitigation design
- Identify appropriate type of landscape mitigation design
  - Erosion Control
  - Revegetation

Activity Checklist, Continued

- Landscape
- Select concept
- Select plant densities
- Select plant palette
- Prepare appropriate design
- Prepare grading plan
  - Specialized grading plans
    - Borrow pit restoration
    - Slope rounding
    - Contour grading
    - Rock cut sculpturing
- Prepare planting plan
- Prepare irrigation plan
- Identify topsoil salvage areas within roadway prism
- Submit finalized landscape mitigation plan for incorporation
- Soil analysis
  - Soil type/characteristics
  - pH
  - Topsoil hydroscopic analysis
  - EC-electrical conductivity
  - SAR--sodium absorption rate
  - Soil color
- Elevation
- Hydraulic analysis
  - Depth to water table
    - summer
    - fall
    - spring
  - Irrigation supply - pressurized
    - water type
      - culinary
      - irrigation
      - reclaimed
    - P.S.I.
  - Supply line
    - pressures
      - peak
      - low
    - approved hours for use
- Special considerations

Activity Checklist, Continued

Input, Continued:

- Final Environmental Document
  - 404 Permit
  - 4F
  - Other mitigation
  - Stream Alteration Permit
- Utilities / easements / lighting
  - Buried Utilities
    - Gas
    - Water
    - Electricity
    - Telephone
    - Cable T.V.
    - Sewer
  - Above Ground / Overhead Utilities
    - Electricity
    - Cable T.V.
    - Overhead Lighting
- Obtain stakeholder acceptance of finalized plan.

Potential Contacts

- Public Involvement Coordinator
- Federal Agencies
  - Army Corps of Engineers
  - Bureau of Land Management
  - National Park Service
  - Soil Conservation Service
    - Plant Materials Centers
    - Region Offices
    - State Offices
  - Federal Highways Administration
    - Division
    - Regional
    - Central
  - Environmental Protection Agency
  - Forest Service
  - Department of the Interior
    - Geological Survey
  - U.S. Fish and Wildlife

Potential Contacts, Continued

- State Agencies
  - Department of Natural Resources
    - Division of State Lands and Forest
    - Division of Energy
    - Division of Water Resource
    - Division of Wildlife Resource
  - State Engineer's Office
    - State Department of Agriculture
    - Seed Lab
    - Environmental Quality
  - Department of Health
    - Division of Environmental Quality
  - Travel Council
  - Community and Economic Development
  - Utah Arts Council
  - Utah State Extension
  - Utah State Water Research Laboratory
- City Departments/offices
  - Public Works Departments
  - Planning Departments
  - Urban/City Forester
- Product Supplier
  - Seed
  - Nurseries
  - Equipment
  - Irrigation
  - Erosion Control
  - Organic Amendments
  - Chemical / Herbicides
  - Professional Organizations / Miscellaneous
  - Utah Association of Nurserymen
  - Utah Community Forest Council
  - Tree Utah

Conduct Design Study Report Review

Activity # 94D

Overview

The Design Engineer assembles the Design Study Report. The Region Preconstruction Engineer/Project Manager reviews and submits the Design Study Report for approval ensuring the final Design Study Report has incorporated the following CSS principles: The transportation need has been adequately addressed, the project will be an asset to the community, and is compatible with the natural and built environment. Ensure that the commitments made to the stakeholders are documented..

Responsibility

Region Preconstruction Engineer/Region Construction Engineer

Description

For UDOT projects:

- The Region Preconstruction Engineer and Region Construction Engineer review the Design Study Report for accuracy and completeness, and recommend to the Region Director that the document be approved.
- The Region Director approves the Design Study Report, except in the case of non-stewardship projects, which he refers to FHWA for approval.
- The Project Manager reviews local government projects and recommends to the Region Director that the documentation be approved.

Follow the approval procedure outlined in Activity 10D, "Conduct Scoping Meeting and Develop Minutes" if a project has a significant concept change after approval of the Scoping meeting minutes and prior to advertising of the project.

Definition of Significant Concept Change:

- Inclusion of any design feature specifically excluded in the concept report.
- Change from structural overlay to rehabilitation.
- Increase in number of lanes as specified in the concept report.
- Bridge rehabilitation changes to bridge replacement.
- Change in project termini that would increase estimated cost by 20 percent.

For local government projects:

- The Project Design Engineer submits to the Project Manager a request for and written justification for the concept change, and a modified Design Study Report. The modified DSR will not be approved until additional approval is obtained from the Metropolitan Planning Organization or Joint Highway Committee.
- The Local Governments Project Engineer Projects refers projects, which have cost estimates increasing by more than 20% to the Transportation Commission for approval.

For projects with cost estimates increasing by more than 20% with no change in concept:

- The Project Manager refers the project through the Statewide Planning Engineer or Pavement Management Engineer to the Transportation Commission for approval. (See Activity 10D).

Description, continued

- Projects submitted for major cost increases are re-evaluated for priority in relation to other projects in the Statewide Plan. The evaluation must include a comparison of initial budget, schedule, and scope estimates with current estimates, and must be reviewed by the Region Preconstruction Engineer. This type of change does not require modification of DSR.
- The Project Manager adjusts the Estimate in EPM.

For Preservation projects (rehabilitation or structural overlays):

- The Roadway Management Engineer re-evaluates project conformance with corridor plans and priority relative to other similar projects.

For Reconstruction or new construction projects:

- The Statewide Planning Engineer evaluates priority relative to other projects in the statewide plan.

Product

Approved Design Study Report

Distribution

Design Study Reports Distribution		
Type of Project		
Federal-Aid Non-Stewardship (Including local government) (3 copies)	Federal-Aid Stewardship (Including local government) (2 copies)	State (2 copies)
Recommended for approval by Region Director	Approved by Region Director	Approved by Region Director
Region Director sends 709 & 2 copies of Design Study Report to Program Coordinator, who signs 709 and forwards all to FHWA	Region Director sends 709 to Program Coordinator for approval.	Region Director sends 709 to Program Coordinator for approval.
FHWA sends 1 approved copy of Design Study Report and signed 709 to Program Coordinator, who forwards them to Region Director	Program Coordinator signs 709, and returns to Region Director	Program Coordinator signs 709, and returns it to Region Director

Conduct Final Structural Soil Testing

Activity # 97D

Overview
Test soils for additional structure foundations.

Responsibility
Project Geotechnical Testing Engineer

Description
- Laboratory personnel conduct tests following applicable AASHTO and ASTM specifications, analyze test results, and prepare applicable charts, graphs and curves.

Product
Time-settlement and consolidation curves, shear strength curves, work sheets, and a Summary of Test Data, which includes soil gradation, Atterberg Limits, unit weight, and moisture content. Other special test results as required.

Distribution
Chief Geotechnical Engineer

Activity Checklist
Tasks:
- ‘ Log in soil samples
- ‘ Lay out soil samples for visual evaluation
- ‘ Prepare samples for testing
- ‘ Conduct testing
- ‘ Review test result
- ‘ Produce test result data sheets, curves, and charts
- ‘ Prepare Summary of Test Data
- ‘ Distribute test data

Additional Reference
- ‘ AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing.
- ‘ ASTM: Annual Book of ASTM Standards:
  Volume 04.02 Concrete and Mineral Aggregates
  Volume 04.08 Soil and Rock; Dimension Stone; Geosynthetics.

THIS PAGE IS INTENTIONALLY BLANK

Develop Structural Geotechnical Design

Activity # 98D

Overview

Selection and analysis of the foundation for the required bridge, wall, retained earth structure, or slide correction. Prepare and submit the recommendations in a geotechnical report.

Responsibility

Geotechnical Design Engineer

Description

- Hold a pre-design concept meeting with the Geotechnical Designer and a Geotechnical Review team to evaluate site conditions, prepare a subsurface exploratory drilling program, and select the proper foundation type and alternates or a conceptual slide correction format.
- Upon completion of each drilling program, submit a Request for Testing form to the laboratory to determine project soil strength parameters. Compute soil bearing capacity, foundation or slope stability factors, footing elevations for walls and spread footings, and tip elevations for deep foundations based on laboratory soil strength parameters.
- Conduct wave equation analysis based on laboratory soil strength parameters for construction control of driven piles.
- Prepare Special Provisions in accordance with recommendations.
- Conduct a quality control review of the recommendations with a Geotechnical review team.
- Prepare a geotechnical report which includes design recommendations, generalized soil boring logs, a summary of test data, and other charts and graphs as required to represent test data.

Product

Geotechnical Report, Special Provisions, and Soil Boring Logs

Distribution

- Federal Highway Administration (if applicable)
- Project Design Engineer
    - Chief Structural Engineer
    - Consultants (if applicable)
    - Project Manager

Activity Checklist

Tasks:

- Conduct a pre-drilling meeting.
- Conduct visual evaluation of soil samples.
- Submit a **Request for Testing** form to the laboratory.
- Prepare a generalized soil boring log incorporating laboratory soil test data.
- Submit generalized soil boring log for final drafting.
- Review laboratory test results for accuracy.
- Conduct analyses using the soil strength parameters derived from the laboratory testing.
- Prepare special provisions if required.
- Prepare a draft Geotechnical Report.
- Conduct a quality control peer review meeting with a Geotechnical review team.
- Prepare the Geotechnical Report.
- Distribute the Geotechnical Report including the generalized Log of Borings.

Additional Reference

- Soils and Foundations Workshop Manual, FHWA 1982
- Manual on Design and Construction of Driven Pile Foundations, FHWA 1985
- Wave Equation Analysis of Pile Driving, FHWA 1981
- Generalized Soil Boring Log
- Summary of Test Data

Review and Approve Geotechnical Report

Activity # 99D

Overview
Review the Geotechnical Report

Responsibility
Chief Geotechnical Manager

Description
Review the Geotechnical design to:

- Verify that the structural requirements (required loads) are satisfied,
- Verify that the type of foundation recommended is appropriate and most cost effective for the given soil conditions
- Identify any given construction restrictions.

For pile foundations:

- Review the length, type, and size of pile for capacity (ultimate and design) and drivability (can the pile be driven into the soil to the given depth and still stay within the pile's structural capacity).
- Evaluate the recommended construction controls (dynamic measurement and analysis and/or static load test) against the factor of safety used for design.

- Evaluate the use of construction controls (piezometers and/or settlement platforms) for placement of embankments (that are recommended by the Geotechnical design engineer), and verify the need by a review of the Geotechnical design engineer's stability analysis.
- Review Geotechnical Reports on State projects to verify that the design conforms to State and AASHTO standards and specifications.
- Review Geotechnical Reports on Local Government projects to verify that the design conforms to AASHTO standards and specifications.
- The Geotechnical Design Engineer who prepares the Geotechnical Report is responsible for the design, regardless of this review.

Product
Approved Geotechnical Report

Distribution
Federal Highway Administration (if applicable)
Project Design Engineer
Assistant Chief Structural Engineer
Consultants (if applicable)
Region Construction Engineer
Region Project Manager

Activity Checklist

Tasks:

- Review Geotechnical Report

Input:

- Completed Geotechnical Report
- Results of Geotechnical Testing program
- Soil boring logs
- A short summary of design assumptions (if not included in the Geotechnical Report)
- A short summary of software used for each analysis (include the version number of the software).
- Input and output files (both digital and hard copy) for each analysis.

Potential Contacts

- Chief Geotechnical Engineer
- Assistant Chief Structural Engineer
- Geotechnical Design Engineer
- Project Design Engineer
- Project Manager

Develop Final Structure Plans (Bridge Rehabilitation)

Activity # 01P

Overview
Final design of structures.

Responsibility
Project Structural Engineer

Description
- Compare the situation layout sheet (summary sheet of structure rehabilitation work) with the latest roadway plans, the hydraulic information, and the railroad and utility approvals. Update the Structural Rehabilitation Situation Layout Sheet with the latest information available.
- Design and detail structural components, structure widening, structure extension and/or structure rehabilitation.
- Ensure design is compatible with commitments made to stakeholders.

Product
Plans and Specifications
Engineer's Estimate

Distribution
Project Design Engineer
Deputy Bridge Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

- Review existing structure plans
- Conduct site investigation
- Inspect the severity and depth of the problem
- Mark the location of the problems on the existing plans
- Design and detail various rehabilitation work
- Prepare plans
- Develop Special Provisions
- Prepare Engineer's Estimate
- Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Input:

- Roadway Plans
- Design Study Report
- Traffic Situation and Detour Plans
- Existing structure plans

Potential Contacts

Agency	Requested Information
Public Involvement Coordinator	Stakeholder contact list
Utilities	Exchange information
Railroads	Permission to enter

Develop Final Structure Plans (Major Structures)

Activity # 08P

Overview
Final Design of structures

Responsibility
Project Structural Engineer

Description
Prepare final structure plans (Major Structures):

- The commitments made to stakeholders incorporating the principles of CSS
- The horizontal and vertical roadway alignment
- Typical road cross-section
- The profile elevations of all the alignments and cross-sections of channels and railroad sections

If a stream is involved, it is necessary to have the required cross-section of the channel plus all the Final Hydraulic Design information and the Final Foundation Report to prepare the Final Design.

After the situation layout has been checked, final design begins.

- Prepare the information to be used by the CADD technicians in preparing final plans. CADD Final Design sheets are part of the information obtained from the Design Engineer.
- Determine and verify Pay Quantities.
- Prepare and verify Engineer's Estimates.
- Prepare Special Provisions.

Product
Plans, Specifications, and Engineer's Estimates.

Distribution
Project Design Engineer
Assistant Chief Structural Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

- Final Design of Structure
  - Design the structure
  - Detail the plans for the structure
  - Check the plans
  - Calculate pay quantities
  - Prepare Engineer's Estimate
  - Prepare Special Provisions as needed
  - Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Input:

- Typical Cross-Sections
  - Cross-Section of roadway carried by structure
  - Cross-Section of roadway, stream, railroad or facility being crossed
  - Location of control and profile lines as they relate to cross-sections
  - Design speeds for each alignment
  - Clear zone under structure
- Plan Sheet
  - Station ties to all control lines at points of intersection.
  - Complete horizontal alignment for roadway carried by the structure. Include bearings, curve data, coordinates of P.I.'s and stationing.
  - Complete horizontal alignment for roadway or facility to be crossed. Include bearings, curve data, coordinates of P.I.'s and stationing. Provide accurate ties to existing roadways, railroads or streams, and any physical characteristics, which may have an effect on the geometry of the structure and the approach fills. Field surveys may be required to obtain adequate ties and information.
  - Show skew or crossing angle of facilities crossed, unless one of the alignments is on a curve.

Activity Checklist, Continued

Input, Continued:

- Profile sheet
  - Profiles of roadway carried by structure
  - Profiles of facility being crossed
  - Vertical curve lengths should have been checked to make sure they are adequate for stopping sight distance requirements
- Foundations
  - Geotechnical Report
  - Soil Boring Logs
- Other
  - Final approved Hydraulics Report

Potential Contacts

- Public Involvement Coordinator
- Project Manager
- Project Design Engineer
- FHWA
- Region and Chief Hydraulics Engineers
- Geotechnical Division
- Region Utilities/Railroad Engineering Coordinator
- Specialty Suppliers

THIS PAGE IS INTENTIONALLY BLANK

Develop Final Structure Plans (Structural Walls)

Activity # 09P

Overview
Final Design of Structural Walls

Responsibility
Project Structural Engineer

Description
Prepare final structure plans (Structure Walls):

- The commitments made to stakeholders incorporating the principles of CSS
- The alignment of roadway
- Alignment of wall
- Profile of wall and roadway
- Typical sections
- Cross-sections

- The Project Structural Engineer provides roadway information to suppliers of structural walls who are interested in preparing plans for alternate bid proposals.
- The Project Structural Engineer provides a design for a reinforced structural wall for the project as an alternative to any proprietary walls proposed in contract.
- Design a structural wall from the standard wall drawing. Assist Geotechnical Engineer with the review of proprietary wall designs.
- Determine and verify Pay quantities.
- Prepare and verify Engineer's Estimates.
- Prepare Special Provisions.

Product
Wall Plans, Specifications, and Engineer's Estimate

Distribution
Project Design Engineer
Assistant Chief Structural Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

- Final Design of Structure
  - Design of alternate structural wall
  - Detail the plans for the structural wall
  - Check the plans
  - Calculate pay quantities
  - Prepare Engineer's Estimate
  - Prepare Special Provisions as needed
  - Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Input:

- Typical Cross-Sections
  - Cross-Sections
  - Location of control and profile lines as they relate to cross-sections
  - Clear Zone
- Plan Sheet
  - Station ties to all control line at points of intersection
  - Complete horizontal alignment for roadway. Will include bearings, curve data, coordinates of P.I.'s and stationing
- Profile sheet
  - Profiles of roadway
  - Profiles of top of proposed wall
  - Profile of bottom of proposed wall
- Foundations
  - Geotechnical Report
  - Soil Boring Logs
- Other
  - Location, elevation and size of pipes and other items which go through the wall

Potential Contacts

- Public Involvement Coordinator
- Project Manager
- Project Design Engineer
- FHWA
- Geotechnical Division
- Region Utilities/Railroad Engineering Coordinator
- Specialty Suppliers

Develop Final Structure Plans (Minor Structures)

Activity # 10P

Overview
Complete final design of structures.

Responsibility
Project Structural Engineer

Description
- Ensure design is in compliance with the principles of CSS.
- Compare the situation layout sheet (box culvert, other hydraulic structures) against the latest roadway plans, the hydraulic information, and the railroad and utility approvals.
- Design and detail structural components, structure widening, structure extension and/or structure rehabilitation.

Product
Plans, Specifications, and Engineer's Estimate

Distribution
Project Design Engineer
Assistant Chief Structural Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

- Review existing structure plans (if applicable)
- Conduct site investigation
- Determine the extent of removal of existing structure (for extension)
- Design and detail the structure
- Prepare plans
- Develop special provisions
- Prepare engineer's estimate to computer
- Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Input:

- Final Roadway Geometrics (Horizontal and vertical alignment and typical sections)
- Design Study Report
- Traffic Situation and Detour Plans
- Existing structure plans (for extension)
- Hydraulic Plan (Initial)

Potential Contacts

- Public Involvement Coordinator
- Project Manager
- Project Design Engineer
- Region Utilities/Railroad Engineering Coordinator
- Region Hydraulics Engineer
- Geotechnical Engineer
- FHWA
- Specialty Suppliers

Finalize Hydraulic Plans

Activity # 15P

Overview

Verify that the Final Hydraulic Plan for the project is complete. Review all hydraulic computations and verify the size, type and location of all hydraulic structures. Verify receipt of permits for "Channel Changes" and "Encroachments on Flood Plains".

Responsibility

Region Hydraulics Engineer

Description

- Ensure Design is compatible with CSS principles.
- Evaluate comments from preliminary reviews and, if needed, incorporate into the final plans. The final hydraulic design conforms to standards set by state, local, and federal agencies and the governing environmental document.

Product

Final hydraulic plans

Distribution

Project Design Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

- Verify conformance with the Final Design Study Report and the Environmental Document.
- Verify drainage sheets, summary sheets, details and mitigation plans.
- Complete Hydraulic Data Summary Sheets and include in the plans.
- Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders.

Input:

- Initial Hydraulic Plans
- Final Mitigation Plans as required by 404 Permit
- Final Design Study Report and Environmental Document
- Soil investigation and testing results

Potential Contacts

- Public Involvement Coordinator
- Chief Hydraulics Engineer
- Project Manager
- Project Design Engineer
- Region Environmental Engineer
- Region Preconstruction Engineer

Finalize Roadway Plans

Activity # 20P

Overview

Make final corrections based on previous review comments. Verify adherence to environmental commitments, agreements, and permits; prepare quantity summaries and special provisions. The Region Environmental Engineer must notify the Chief Environmental Engineer by memorandum that all proposed mitigation measures have been included in the plans.

Responsibility

Project Design Engineer

Description

- Ensure Design is compatible with CSS principles.
- The Project Design Engineer resolves previous review comments and makes or coordinates appropriate corrections to the roadway and specialty plans.
- Compute and finalize quantity summaries.
- Prepare an Engineer's Estimate.
- Prepare and verify Special Provisions, and include in the final package.
- The Region Preconstruction Engineer is responsible for either incorporating into the plans or otherwise resolving all previous review comments.

Product

Final Roadway Plans, Special Provisions, and Engineer's Estimate

Distribution

Project File

Activity Checklist

Tasks:

- Finalize Roadway Design Sheets
  - Finalize all work on roadway plan package including utilities
  - Finalize design for all permit mitigation
- Finalize Signing and Striping Plans
  - Revise sheets according to comments from field review and traffic engineer's review
  - Review for compliance with MUTCD

Activity Checklist, continued

- Finalize Traffic Control Plans
  - Set up phasing based on construction activities
    - Time of advertising
    - Estimated completion (length of contract days)
  - Detours
  - Flagging
  - Road closure time
  - Nighttime work
  - Specifics for each phase and type of work
- Prepare engineer's estimate
- Prepare special provisions
- Check that all DSR items are covered and DSR is not violated
- Compute contract time
- Region Environmental Engineer reviews plans to verify commitments are included, and submits a memorandum to Chief Environmental Engineer clearing mitigation measures

Input:

- Roadway plans from Final Design Study Report
- Field Review reports from:
  - Hydraulics
  - Right-of-Way
  - Landscape
  - Traffic and safety
- Traffic Management Plan
- Final Environmental Document
- Special permits and conditions:
  - 404
  - Wastewater Discharge
  - Memorandum of Agreement
  - Archaeological
  - 4(f)
  - Stormwater Pollution Prevention Plan
  - State Historical Preservation Officer
  - Historic American Engineering Record
  - Stream Alteration
  - National Pollutant Discharge Elimination System
- Reports/comments/minutes from all field reviews
- Obtained endorsement from stakeholders for changes that alter commitments made to stakeholders

Potential Contacts

- Public Involvement Coordinator
- Contacts should have already have been made, and should continue as needed

THIS PAGE IS INTENTIONALLY BLANK

Finalize Landscape Plans

Activity # 25P

Overview
Finalize a complete set of Landscape Plans.

Responsibility
Region Landscape Architect

Description
- Ensure Design is compatible with CSS principles.
- Finalize landscape sheets.
- Develop engineer's estimate, notes, and special provisions that may be required.

Product
Final set of Landscape Plans for PS&E review

Distribution
Project Design Engineer

Activity Checklist
Tasks:

‘ Prepare Final Schedules
‘ Check Schedules for accuracy
‘ Prepare all necessary detail
  ‘ Irrigation
  ‘ Planting
  ‘ Miscellaneous
‘ Select Standard Specification and Pay items
‘ Write Special Provisions
‘ Create Cost Estimates
‘ Check for agreement of detail with Standard Specifications and/or Special Provisions
‘ Check Summaries and Cost Estimates for Accuracy

Input:

- Initial Roadway Plans
- Initial Landscape Plans
  - Grading Plans
  - Planting Plans
- Site Development Plans
  - Edge of pavements
  - Roadways
  - Walkways
  - Bike Paths
- Utility Locations
- Irrigation supply
  - Water Type
    - Culinary
    - Irrigation
    - Reclaimed
  - Supply Line
    - Size
    - Location
    - P.S.I.
      - Peak
      - Low
    - Approved Hours For Use
- Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Potential Contacts

Contacts should have already have been made, and should continue as needed.

Finalize Signal And Lighting Plans

Activity # 30P

Overview
Finalize a complete set of traffic signal or street lighting plans.

Responsibility
Project Design Engineer

Description
- Ensure Design is compatible with CSS principles.
- Finalize traffic signal or street lighting plan sheets.
- Develop detailed summary of items, circuit schedules, engineer's estimates, additional notes, and special provisions as required.
- Resolve all previous review comments.

Product
Final set of plans for PS&E review.

Distribution
Region Traffic Engineer
Project Manager (letter only)

Activity Checklist
Tasks:
- ‘ Design detailed circuit sheets showing location of conduit wiring
  - ‘ Design conduit and wire sizes and number
- ‘ Prepare summary of item sheets
- ‘ Prepare circuit schedule sheets
- ‘ Prepare special provisions
- ‘ Prepare engineer's estimates
- ‘ Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Input:
- ‘ Notes from reviews
- ‘ Initial Signal and Lighting Plans
- ‘ Initial Signing and Striping Plans

Potential Contacts

- Public Involvement Coordinators
- FHWA - review plans
- District Office - review plans
- Power Company - notify of power source needs and timing
- Local agency and utilities
- Central Traffic and Safety

Review Final Structure Plans

Activity # 33P

Overview
Review the final structure plans for major structures, minor structures, structural wall, or bridge rehabilitation.

Responsibility
Assistant Chief Structural Engineer

Description
- Ensure Design is compatible with CSS principles.
- Review the structure geometry for compliance with the current horizontal and vertical roadway alignments, typical road cross-sections, the profile elevations of all the alignments and the cross-sections of channels and railroad sections.
- Complete a comprehensive structural analysis on the structure to verify that it meets all requirements of the current AASHTO bridge specifications and applicable UDOT Structures Division design standards. Include an in-depth seismic analysis for all multi-span structures.
- Review the plans to verify completeness, accuracy, and compliance with detailing standards and design intent.
- Review the special provisions and the engineer's estimate.

For Local Government Projects:
- Review the plans to verify they have been signed and sealed by the Consultant.
- Conduct a less comprehensive review to verify that AASHTO and UDOT standards have been used and the proper assumptions were made in the calculations and design.

Product
Approved set of Structure Plans, Specifications, and Estimate

Distribution
Project Structural Engineer
Project Design Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

- Review the Final Structure Plan Set for content, accuracy, completeness, structural adequacy, and constructability. For Local Government Projects, verify that plans have been signed and sealed, AASHTO and UDOT standards were used, and the proper assumptions were made
- Review the Engineer's Estimate
- Review the Special Provisions

Input:

- All the input items listed under Activity 01P, 08P, 09P, or 10P, depending on the project type
- Completed structure plans
- Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Potential Contacts

- Public Involvement Coordinator
- Project Structural Engineer
- Region and Central Hydraulics Engineers
- Geotechnical Division
- Project Design Engineer
- Project Manager

Prepare Utility and Railroad Agreements

Activity # 35P

Overview

Send plans to the railroad and utility companies, receive companies' plans and estimates, and prepare the necessary agreements.

Responsibility

Region Utility/Railroad Engineering Coordinator

Description

- Order the required number of copies of the plans for the utility and railroad companies. Prepare letters of transmittal, giving instructions regarding relocation, betterment, reimbursement of funds, and requirements regarding State and Federal funds. The companies that qualify for federal- or state-funded relocation are authorized to proceed with preliminary design engineering to prepare plans and cost estimates to relocate and adjust their facilities.
- The Region Utility/Railroad Engineering Coordinator receives the plans and cost estimates from the utility companies, and reviews the plans and cost estimates to verify that the work is necessary, and that relocations and/or adjustments do not create additional conflicts.
- The Region Utility/Railroad Engineering Coordinator prepares necessary agreements with the utility and railroad companies for adjustments, and sends agreements to the Project Design Engineer to review for compatibility with the project.
- In the case of railroad conflicts where the change impacts the public, the Region Utility/Railroad Engineering Coordinator prepares a "Notice of Intended Action" and publishes the Notice in a public newspaper after receiving approval by the UDOT Director and the Attorney General.

Product

Utility and railroad agreements

Distribution

Agreements are distributed to the:
Utility companies
Railroad companies
Project Manager

Activity Checklist

Tasks:

Region Utility/Railroad Engineering Coordinator:

- Receives and reviews the final Utility Project Plans.
- Orders the required number of copies printed for the utility and railroad companies.
- Prepares letters for transmitting plans to the utility and railroad companies, requesting they review the plans for conflicts. When necessary, authorizes them to prepare plans and estimates for any work required to eliminate conflict with the proposed project.
- Receives and reviews utility and railroad plans and estimates for compatibility with the project.
- Prepares utility and railroad agreements.
- Sends agreements to the Project Design Engineer for review and compatibility approval.
- Sends agreements to Utilities and Railroads for processing.
- Sends signed agreements to Project Manager.

Prepare Lighting/Signal Agreements

Activity # 37P

Overview
Prepare the necessary agreements with municipality.

Responsibility
Region Utility/Railroad Engineering Coordinator.

Description
The Region Utility/Railroad Engineering Coordinator:

- Receives and reviews lighting/signal plans.
- When the Lighting/Signal Agreements are prepared and approved, prepares transmittal letters and submit the agreements to the municipality for review, approval and execution.
- Executes or modifies the Lighting/Signal Agreements when they are returned to the Region from the municipality.

Product
Fully executed Lighting/Signal Agreements

Distribution
Appropriate city or county
Project Design Engineer
Comptroller's Office
Region Construction Engineer
Project Manager

Activity Checklist

Tasks:

Region Utility/Railroad Engineering Coordinator:

- Receives and reviews plans and requests for necessary Lighting/Signal Agreements to verify that all data is correct.
- When necessary, holds a coordination meeting with Project Design Engineer for better understanding of the lighting plans and to obtain authority numbers.
- Prepares the Lighting/Signal Agreement.
- Sends the Agreements to the Project Design Engineer for review and compatibility approval.
- Reviews the Agreements and makes any changes requested by the Project Design Engineer.
- Sends the agreement to the local authority for execution.
- Sends signed agreement to appropriate individuals

PS&E Public Involvement

Activity # 38P

Overview

PS&E Public Involvement ensures the commitments made to stakeholders are incorporated into the design and the required level of stakeholder endorsement is achieved. It also establishes procedures necessary to gain the required level of public endorsement, provides documentation on the commitments made to stakeholders, and ensures they are passed on through the construction phase.

Responsibility

Public Involvement Coordinator

Description

- Obtain the acceptance of stakeholders for the completed design at the appropriate level of commitment
- Conduct a review with PM on CSS strategies and design expectations. Include the following:

  Document what was specifically done to minimize impacts to natural and built environments.

  Document what was specifically done to make the project an asset to the community.

  Document the commitments made to stakeholders and ensure they are passed on through the construction phase.

  Provide a means for the general public to stay informed on the progress of the project.

Product

Revised Public Involvement Plan for PS&E phase

Distribution

Public Involvement Coordinator
Region Preconstruction Engineer
Region Environmental Engineer
Chief Environmental Engineer
Project Manager
Operations/District Engineer

Activity Checklist

Tasks:

- Update Public Involvement Project File
- Document commitments made to stakeholders
- Update Public Involvement Plan
- Create the section for the Public Involvement Project File to incorporate CSS principles and commitments into the construction and maintenance phases

Potential Contacts

- Public Involvement Coordinator
- Project Manager

Media Relations

Activity # 39P

Overview

The Project Manager meets with the Community Relations Office to review the Media Relations plan for any updates necessary prior to advertising the project. They will also develop a Media Relations plan for the Construction phase.

Responsibility

Project Manager

Description

- Confirm that the stakeholders identified in the Design phase are still valid. Identify any new stakeholders
- Review the project Scope and Schedule. Identify any changes that may affect the Media Relations plan. Update as necessary
- Develop a Media Relations plan for the Construction phase of the project. Identify how the plan will be implemented during construction
    - In house
    - Contract specifications
    - Consultant
- Estimate costs of Construction phase Media Relations and incorporate in the Project Estimate as appropriate.

Distribution

Region Preconstruction Engineer
Project Design Engineer
Region Environmental Engineer
Region Construction Engineer
Resident Engineer
Public Involvement Coordinator
Project Manager
Operations/District Engineer
Community Relations Office

Activity Checklist

Tasks:

- ‘ Update Design phase Media Relations plan
- ‘ Create Construction phase Media Relations plan
- ‘ Identify costs
- ‘ Update project file

THIS PAGE IS INTENTIONALLY BLANK

Conduct Final Right-of-Way Review

Activity # 40P

Overview
Review the Right-of-Way plans and documents.

Responsibility
Region Right-of-Way Engineer

Description
- Obtain, review and certify the complete set of Right-of-Way plans, documents and summaries for completeness and conformity to standards and procedures.

Product
Complete and certified set of Right-of-Way plans and supporting documents

Distribution
Project Design Engineer
Project Manager (letter only)

Activity Checklist

Tasks:

- Review the plans, documents and summaries for completeness and conformity to standards and procedures, and to environmental document. Certify by signing title block.
- Verify that the deeds of taking agree and conform to the method of ownership.
- Verify that all clauses used in deeds and easements are applicable to the construction needs of the project guidelines.
- Verify that all signatures are entered on the plans.
- Verify that all information required by UDOT Program Development for transferring highways to local governments is prepared.
- Verify that all features in the roadway plans that require right-of-way deeds and easements are included in right-of-way plans.

Input:

- Complete work copies of the Ownership Records, Deeds, Office Copies and Summaries.
- Complete set of Right-of-Way maps, stamped and certified by a Utah licensed land surveyor.
- Complete set of Right-of-Way maps and documents for UDOT Program Development to prepare agreements for transfer of highways (when applicable).
- Complete set of roadway plans.

Contacts

- Project Manager
- Project Design Engineer
- Chief, Right-of-Way
- Region Environmental Engineer

Conformity Review of Right-of-Way Package

Activity # 45P

Overview
Complete transmittal package for Right-of-Way acquisition.

Responsibility
Region Right-of-Way Engineer / UDOT Right-of-Way Engineer

Description
- Conduct a conformity review of the Right-of-Way package and transmit it to the Right-of-Way Division.
- When requested by the Region, the UDOT Right-of-Way Engineer reviews the package.

Product
Right-of-Way package ready to be transmitted to the Right-of-Way Division for appraisal and acquisition, or Right-of-Way package for abandonment/Assignment of Jurisdiction to local governments to UDOT Program Development.

Distribution
Right-of-Way Division
UDOT Program Development Director (when applicable)

Activity Checklist

Tasks:

- Verify that all project documentation and maps conform to Department standards and certify by signing title block.
- Verify that the project has been approved by FHWA or by the state.
- Print and fold five (5) reduced sets of the Right-of-Way maps for the package.
- Prepare a transmittal letter describing the Right-of-Way Summary, the number of parcels and the maps. Prepare any letters documenting the action on the project. Send copies to the Region Right-of-Way Engineer.
- Transmit by letter all documents for transfer of highways and frontage roads to UDOT Records Manager.
- Verify that the Record of Survey Plat has been filed with the County Surveyor and the UDOT Right-of-Way Engineer.

Input:

- Reviewed and approved copies of the Ownership Records, Summaries, and instruments
- Reviewed and approved Right-of-Way maps and summaries
- Reviewed documents prepared for transfer of highways and frontage roads to local governments

Contacts

- Right-of-Way Division
- Region Right-of-Way
- Program Development

Make Right-of-Way Appraisals

Activity # 55P

Overview
Complete the appraisal and have it reviewed to establish market value.

Responsibility
Appraisal Supervisor

Description
Appraisal supervisor:

- Prepares a preliminary Right-of-Way estimate, needed for FHWA or state approval through R-708 Authorization to Purchase.
- Assigns the various parcels to the appraisers and has the appraisal report reviewed.
- Attends and/or assigns a Right-of-Way Lead Person to be a member of the Project Manager's team at concept, P.S. and E. meetings, public meetings, etc. to answer Right-of-Way questions and to give input.

Staff or fee appraiser(s):

- Receives the appraisal portion of the Summary of Right-of-Way, which contains legal description of the of the parcels needed, right-of-way maps, and ownership reports covering each ownership
- Prepares an appraisal on each ownership assigned/contracted. The type of report required is identified by the following terms, depending on the type of property appraised, appraisal approach used, and dollar amount determined to be just compensation.
    1. Value Finding: fair market value is determined to be $10,000 or less on Federal and state projects with no major improvements acquired or damages assessed to the property.
    2. Abbreviated appraisal report: for uncomplicated appraisal where only one approach, usually the market, is applicable.
    3. Right-of-Way appraisal report: complete narrative report. This report is required if the property being appraised requires more than the market approach (income, cost, or both), has damages to remainder, or is a specialized type of property.

Activity Checklist

- Appraisal Supervisor attends concept, PS&E meetings, public meetings, etc, to answer Right-of-Way questions.
- Receive appraiser copy of summary of right-of-way, authorization to proceed, FHWA R-709.
- Appraisal Supervisor reviews all parcels/ownerships and makes field review.
- Appraisal Supervisor meets with staff/fee appraisers and reviews assignments.
- Staff/fee appraiser prepares appraisal report.
  - Inspects property
  - Meets with property owners
  - Researches market/cost/income
  - Writes report/fair market value
  - Requests Right-of-Way staked as needed
- Review appraiser reviews reports
  - Inspects property and market sales
  - Writes appraisal review
- Appraisal Supervisor distributes three approved appraisals to Acquisition Supervisor

Input:

- Summary of Right-of-Way packet (appraiser's copy)
- Project Plans
- EIS Reports, Project Design comments

Potential Contacts

Agency	Information Requested
Federal Highway Right-of-way Specialist	Authorization to proceed Plans signed or R-709
Region Preconstruction and Right-of-Way Engineers and Project Manager	Construction Plans, etc. Right-of-way Maps
County Government Offices: Planning and Zoning Recorder's Office	Zoning Ordinances Recording Information 5 year Title Search
Real Estate Appraisers/Contractors	Current market data Cost information
Owner of Property to be Appraised	Inspection of property to be appraised

THIS PAGE IS INTENTIONALLY BLANK

Make Right-of-Way Appraisals (Consultant)

Activity # 57P

Overview

Complete the appraisal and have it reviewed to establish market value.

Responsibility

Appraisal Supervisor

Description

Appraisal Supervisor:

- Prepares a preliminary Right-of-Way estimate, needed for FHWA or state approval through R-708 Authorization to Purchase.
- Assigns the various parcels to the appraisers and has the appraisal report reviewed.
- Attends and/or assigns a Right-of-Way Lead Person to be a member of the Project Manager's team at concept, P.S. & E. meetings, public meetings, etc. to answer Right-of-Way questions and to give input.

Staff or fee appraiser(s)

- Receive the appraisal portion of the Summary of Right-of-Way, which contains legal description of the parcels needed, right of way maps, and ownership reports covering each ownership.
- Prepare an appraisal on each ownership assigned/contracted. The type of report required is identified by the following terms, depending on the type of property appraised, appraisal approach used, and dollar amount determined to be just compensation.
    1. Value Finding: fair market value is determined to be $10,000 or less on Federal and state projects with no major improvements acquired or damages assessed to the property.
    2. Abbreviated appraisal report: for uncomplicated appraisal where only one approach, usually the market, is applicable.
    3. Right-of-Way appraisal report: complete narrative report. This report is required if the property being appraised requires more than the market approach (income, cost, or both), has damages to remainder, or is a specialized type of property.

Activity Checklist

- Appraisal Supervisor attends concept, PS&E meetings, public meetings, etc, to answer Right-of-Way questions.
- Receive appraiser copy of summary of right-of-way, authorization to proceed, FHWA R-709.
- Appraisal Supervisor reviews all parcels/ownerships and makes field review.
- Appraisal Supervisor meets with staff/fee appraisers and reviews assignments.
- Staff/fee appraiser prepares appraisal report.
  - Inspects property
  - Meets with property owners
  - Researches market/cost/income
  - Writes report/fair market value
  - Requests Right-of-Way staked as needed.
- Review appraiser reviews reports
  - Inspects property and market sales
  - Writes appraisal review
- Appraisal Supervisor distributes three approved appraisals to Acquisition Supervisor.

Input:

- Summary of Right-of-Way packet (appraiser's copy)
- Project Plans
- EIS Reports, Project Design comments

Potential Contacts

Agency	Information Requested
Federal Highway Right-of-way Specialist	Authorization to proceed Plans signed or R-709
Region Preconstruction and Right-of-Way Engineers and Project Manager	Construction Plans, etc. Right-of-way Maps.
County Government Offices: Planning and Zoning Recorder's Office	Zoning Ordinances Recording Information 5 year Title Search
Real Estate Appraisers/Contractors	Current market data Cost information
Owner of Property to be Appraised	Inspection of property to be appraised

THIS PAGE IS INTENTIONALLY BLANK

Acquire Right-of-Way

Activity # 60P

Overview

Purchase the necessary right-of-way. Certify that the right-of-way is clear (all necessary right of way has been acquired).

Responsibility

Acquisition/Relocation Supervisor (Supervisor)

Description

- Staff agents acquire the necessary right of way under the direction of the Acquisition/Relocation Supervisor (Supervisor).
    - The acquisition process begins when the Supervisor receives the approved appraisal.
    - The time line to complete the acquisition process will be impacted if there are improvements, which must be purchased and vacated. In most acquisitions, the acquisition process should be completed within 30 days after the appraisal has been received by the acquisition supervisor and assigned to an acquisition agent.
    - Each acquisition agent is expected to complete 10 acquisitions per month.

- When the acquisitions have been completed, the supervisor, upon request, certifies that the right of way has been cleared.

Product

Right-of-Way Contract/Purchase Agreement
Settlement Invoice
Closing Statement
Warranty Deed
Agent's Log
Right-of-Way Certificate of Clearance

Distribution

Project Engineer
Project Manager
Property Management Section Supervisor
Condemnation Supervisor
Administrative Control and Reimbursement Section Supervisor
Advertisement Unit (Right-of-way certificate only)
Federal Highway Administration (Right-of-way certificate only, when applicable)
Construction Division

Activity Checklist

- Supervisor receives appraisal and file from Appraisal supervisor. (File contains documents including the deeds, ownership record and maps as prepared by the region or contract R/W engineer.)
- Supervisor assigns the acquisition to a staff agent and forwards appraisal and file to that agent.
- Agent prepares the offer documents and meets with the owner to present the written offer to purchase.
- If issues arise which require input from the project manager or design engineer, the agent contacts those persons and the supervisor.
- Agent discusses any cost to cure or other items to be added to the contract/purchase agreement with the supervisor and the project manager before the contract is approved.
- If an agreement has been reached and the grantor has signed the contract, the agent submits the contract with the acquisition file to the supervisor for approval.
    - If approved, the supervisor signs the contract and forwards it with the executed deeds and the acquisition file to the Chief, Right of Way, for departmental approval.
    - After approval by the department representative (Chief), the acquisition file with the executed contract, deeds and Purchase Invoice are forwarded to the Property Manager for closing. Copies of the contract are forwarded to the Project Manager, Design Engineer, Project Engineer and Region Director.
- If an agreement is not reached within a reasonable time (generally within 30 days after negotiations to purchase have been initiated), the agent forwards the acquisition file to the supervisor with a request for condemnation.
    - The supervisor reviews the request, and if it is necessary to proceed to condemnation, approves the request and forwards it with supporting documentation to the Condemnation Supervisor.
        - The agent may continue to work with the owner, if a possibility of settlement with the owner exists. To facilitate continued dialog, the agent informs the owner in writing that other settlement options may still exist, including Binding Appraisal Agreement, Mediation or Arbitration.
        - The Attorney General's office and the Chief of Right of Way facilitate any settlement reached after the condemnation action has been initiated by the Attorney General's Office.

Acquire Right-of-Way (Consultant)

Activity # 62P

Overview

Purchase the necessary right-of-way. Certify that the right-of-way is clear (all necessary right of way has been acquired).

Responsibility

Acquisition/Relocation Supervisor (Supervisor)

Description

- Consultant agents acquire the necessary right of way under the direction of the Acquisition/Relocation Supervisor (Supervisor).

Refer to Activity 60P. Consider instructions as directed to the consultant agent rather than the staff agent.

THIS PAGE IS INTENTIONALLY BLANK

Relocate Occupants

Activity # 65P

Overview

Relocate displaced persons as prescribed by State Law and where applicable, the "Uniform Act."

Responsibility

Acquisition and Relocation Supervisor (Supervisor)

Description

- If it is determined that a person, business, or non-profit corporation will be displaced by the project construction, the Relocation Supervisor assigns an agent to complete the relocation and provide necessary assistance to the displaced person.
- It should be noted that eligibility requirements vary depending on the use of the property, the occupancy period (how long the property has been occupied by the owner or tenant) and other qualifying factors. The time line to complete the relocation process varies depending on the use of the property and the needs of the displaced persons.
- In all instances the displaced persons must be given a minimum of 90 days to continue to occupy the displacement property (home, business or farm) from the time the acquisition agent initiates negotiations to purchase and the displaced person has received proper notices to vacate and sufficient advisory assistance.

Product

Relocation File, which contains some or all of the following items:
File Index
Agent's Log
Replacement Housing Study
Tenant Housing Study
Notice of Eligibility
90 Day Notice
30 Day Notice
Claim Forms
Decent Safe and Sanitary Inspection Report
Inventory Report
Moving Bids
Right of Way Certificate of Clearance (which certifies that the relocations have been completed and the right of way is therefore cleared for advertisement).

Distribution

Chief, Right-of-Way
Property Management Supervisor
Project Manager
Region Director
Construction Engineer
Project Engineer
Construction Division

Activity Checklist

- Supervisor receives appraisal and appraisal file from the Appraisal Supervisor. File contains documents including the deeds, maps and ownership record as prepared by the region or contract R/W Engineer.
  - Based upon the complexity of the relocation, the supervisor assigns the relocation to the appropriate agent (Staff or Consultant), and forwards the file to that agent.
  - Agent prepares a relocation file.
  - Agent meets with the displaced person and conducts the relocation interview to determine the level of and type of assistance needed.

  For Residential Property:
    - Agent prepares a Supplemental Housing Study, or Tenant Housing Study and Notice of Eligibility.
    - When prepared, the Study and Notice are delivered to the displaced person (by hand delivery or by certified mail).
    - Agent obtains the displacee's signature on the Supplemental Housing Study as evidence that they received the study.
    - 90-Day Notice is issued to the displaced person.
    - Agent continues to work with the displaced person providing necessary advisory assistance until a replacement home is selected and the displaced person vacates the displacement home.
    - Agent informs the Property Management Supervisor when the displacement home has been vacated.
    - Property Management Supervisor inspects the property and releases the appropriate amount of the security/key deposit.
    - Agent prepares claim forms for moving expenses, and supplemental housing payments and presents the claim forms to the displaced person for signature. (Owner has 18 months from the time they move from the displacement residence to file their claims).
    - When signed, the executed claims are submitted to the Supervisor for review and approval.
    - Supervisor forwards the approved claim form to the Chief, Right of Way for division approval.
    - Approved claim forms are returned to the agent who submits them to the Support Services Center for Payment.

For Non Residential Property:

- Agent meets with the displaced person (tenant or owner operator) and explains the available relocation assistance.
- As soon as necessary after the Acquisition Agent has initiated negotiations to purchase the subject displacement property, a 90 Day Notice is delivered to the displaced person occupying the property.
- Agent or displaced person completes an inventory report of all personal property, furniture or fixtures, which are to be moved.
- Agent reviews the inventory and inspects the property to confirm that the inventory is complete and accurate.
- Agent or displaced person obtains a minimum of two moving bids from qualified moving companies.
- Agent prepares and delivers a 30 Day Notice to Vacate.
- Agent monitors displacee's move.
- Agent prepares appropriate claim forms and presents the claim forms to the displaced person for signature.
- Agent submits executed claim forms to the Supervisor for approval.
- Supervisor reviews the claim forms, signs them and forwards them to the Chief, Right of Way for approval.
- Approved claims are returned to the agent who forwards them to the Support Services Center for payment.
- Agent continues to provide necessary advisory assistance until the displaced person has successfully relocated and/or the displacement property has been vacated. (Displaced persons have up to one year from the displacement date to relocate.)
- When the displaced person has vacated the displacement property, the moving payments are released to them and the property is turned over to the Property Management Supervisor.

- When all displacement properties have been vacated for the project, the Supervisor certifies that the Right of Way has been cleared for relocation.

THIS PAGE IS INTENTIONALLY BLANK

Condemn Right-of-Way

Activity # 67P

Overview
Obtain Order of Immediate Occupancy through the courts.

Responsibility
Attorney General Support Engineer

Description
- If the Acquisition Agent is unable to reach an agreement with the property owner, the agent will discuss the owners' objections with some or all of the following for a possible administrative settlement: Review Appraisal Supervisor; Appraiser; Chief, Right-of-Way and Acquisition Supervisor.
- If an agreement cannot be reached, the agent submits the property for condemnation. The agent prepares a "Request for Condemnation" and submits the request, with a copy of the Appraisal Report and agent's negotiation log, to the Acquisition Supervisor. The Acquisition Supervisor prepares memos to be sent to the Attorney General's office requesting condemnation proceedings.

- The Attorney General Support Section Engineer has a 40-year title search done to verify that the state is condemning the correct owners, and lists all parties having an interest in the property. Attorney General Support Section prepares a Condemnation Resolution and maps and sends copies to the Acquisition Supervisor and Attorney General's office, requesting that they start condemnation proceedings.
- The Attorney General's Office prepares a Service of Summons, Complaint, Motion, Memorandum of Support of Motion and Order of Occupancy. One set is served to the legal owners and all interested parties, and one set is sent to the District Court in whose jurisdiction the property is situated. The service of legal papers notifies the owners of the intent of the Utah Department of Transportation to obtain the property through legal means, and that they have a certain amount of time to respond to the Summons before the Attorney General pursues an Order of Immediate Occupancy from the court.
- When the Attorney General obtains an Order of Immediate Occupancy, a certified copy is returned to the Acquisition Supervisor, who in turn sends it to the Attorney General Support Engineer to have it recorded in the proper county.

Product
- Right of Entry or Order of Immediate Occupancy

Distribution
- Chief, Right-of-Way

Activity Checklist

Acquire right-of-way, condemn unsettled property, and issue Right-of-Way Certificate.

Tasks:

- Submit all failed negotiations for condemnation
- Order title search completed for condemned properties
- Prepare Condemnation Resolutions: Attorney General Support Engineer
- Condemn property through the courts. Obtain Order of Immediate Occupancy
- Notify Chief of Right-of-Way that right-of-way is clear of all properties requiring condemnation

Input:

- Design Plans
- Right-of-Way Contract
- Condemnation Resolution

Potential Contacts

Agency	Information Requested
Federal Highway Right of Way Specialist	Federal Participation and Clearance Authorization
Region Preconstruction and Right of Way Engineers and Project Manager	Construction Plans, etc. Corrected Deeds and Ownerships
County Government Offices Planning and Zoning Recorder's Office County Clerk County Treasurer	Zoning Ordinances Recording Information Condemnation, submit to courts Property Taxes
Owners of property to be acquired	Right of Way Contract Signed Deeds

Assemble PS&E Package

Activity # 70P

Overview
The Project Design Engineer assembles the PS&E package and completes Designers' checklist (See Forms Appendix).

Responsibility
Project Design Engineer

Description
The Project Design Engineer:
- Assembles the roadway plans, special provisions, engineer's estimate, PDBS Summary Report, and Measurement and Payment excluding standard drawings.
- Acquires additional needed special provisions and drawings, (e.g. structures).
- Reviews the estimate on the state bid system for inclusion of any applicable areas.

Product
Complete set of plans, special provisions, and estimate, excluding standard drawings.

Distribution List
Project Manager

Activity Checklist
Tasks:

‘ Check the submitted package for completeness.

‘ Incorporate plans, details, special provisions, and estimates from other divisions/departments.

‘ Check to see that all other requirements have been met.

‘ Complete Designers' Checklist (See Forms Appendix).

‘ Prepare contract time in conjunction with the Resident Engineer and Project Manager for project:

(review UDOT policy)

A. Adjustment for time of year when contract is to be awarded

B. Adjustment for contractor to obtain environmental clearances for disposal/material/staging sites not cleared by UDOT in project environmental document.

‘ Submit total PS&E package to Project Manager

Input:

‘ Final plans, specials, and estimates.

THIS PAGE IS INTENTIONALLY BLANK

Prepare For and Hold PS&E Review

Activity # 75P

Overview

The Project Manager receives the PS&E package, schedules the PS&E review meeting, reviews the project package, and conducts the review meeting.

Follow the approval procedure outlined in Activity 94D, "Conduct Design Study Report Review," for projects having a significant concept change after approval of the Design Study Report and prior to advertising the project.

Responsibility

Project Manager

Description

The Project Manager receives the project package, reviews it for clarity, and verifies that all structure, signal and lighting drawings, all specifications, PDBS Summary Report, and Measurement and Payment are included.

All PS&E team members receive plan packages and review them for clarity and completeness.

Project Manager and Construction Division determine whether a pre-bid meeting should be held (see Activity 90P).

Product

A complete and thoroughly reviewed set of the plans, special provisions, and estimate.

Distribution

The Project Manager determines the proper distribution from the following list:

Federal Highway Administration (2) (when applicable)
Region Director (Letter only)
Project Engineer -- 3 copies
Region Preconstruction Engineer
Region Construction Engineer
Region Operations Engineer
Project Design Engineer -- 3 copies
Region Traffic Engineer
Region Environmental Engineer
Region Hydraulics
Region Utilities/Railroad Engineering Coordinator
Region Materials Engineer
Region Pavement Engineer
Project Manager
Region Right-of-Way Engineer
Structures
Region Landscape Architect
Consultants -- 3 copies (when applicable)
Others: Local entities, irrigation companies, etc.
Chief, Right-of-Way (Letter only)
PPMS Engineer Manager (Letter only)
Consultant Services (Letter only)
Civil Rights Coordinator (Letter only)
Construction Division (Letter only)

Tasks:

- Project Manager determines PS&E team with input from the Project Design Engineer.
- The Project Manager schedules the review meeting, coordinating with the Federal Reviewers and the Project Design Engineer.
- Project Manager writes letters of notification to all parties involved.
- Project Manager completes the PS&E package with supplementals and distributes it to all parties involved.
- Project Manager conducts PS&E Review.
- The Project Design Engineer prepares a report of the minutes of the Review, which will address each issue, and how it will be resolved. The report is distributed within one week of the meeting to those who attended the review.

Make PS&E Revisions/Additions

Activity # 80P

Overview
Make the necessary corrections, revisions, and changes to the plans, specifications, and Engineer's Estimate as noted in the PS&E Review.

Responsibility
Project Design Engineer

Description
The Project Design Engineer refers revisions/additions identified during the review to the responsible units for correction. The Project Design Engineer makes changes and corrections to the Roadway Plans, Traffic Control Plans, PDBS Summary Report Sheets, Engineer's Estimate, Measurement and Payment, and Special Provisions, and prepares transit and grade books. Based on input back from the PS&E review.

After the revision is made, the Project Design Engineer submits the plans to the Region Preconstruction Engineer for signature.

Product
PS&E Minutes and Resolution Report
Final Package
Final Plan Check List (A-55)
Transit and Grade Books

Distribution
PS&E Minutes and Resolution Report:
- Meeting Attendees

Final Package:
- Project Manager
- Project Review Engineer (as assigned)
- Resident Engineer
- FHWA (Federal-aid non-stewardship projects--2 copies)

Transit and Grade Books:
- Project Engineer

Final Plan Check List:
- Project Review Engineer
- Project Design Engineer

Activity Checklist

Tasks:

- Make revisions/additions
- Compile final package
- Submit final package to Project Manager, Region Preconstruction Engineer, Construction Project Engineer, FHWA (where applicable)
- Complete Final Plans Check List
- Prepare and submit Transit and Grade Books
- Reassess Contract Time

Prepare Advertising Plan Set

Activity # 85P

Overview

Prepare project package for advertising.

Responsibility

Project Manager

Description

The Project Manager receives the project package (plans, special provisions, estimate, and Measurement and Payment) and delivers the package to the Preconstruction Engineer. The Preconstruction Engineer reviews the package for completeness and clarity, and verifies that all clearances have been obtained. The Preconstruction Engineer then sends the package (as the Final Package) back to the project manager.

The Project Manager:

- Reviews the Final Package with comments received from the Project Review Engineer, and incorporates them as corrections.
- Obtains signed approval of package from the Region Preconstruction Engineer.
- Submits two copies to FHWA on non-stewardship projects.

Product

- A project, complete and ready for advertisement.
- R-709 (Federal-aid projects only)
- T-725 (all projects)
- Federal-Aid Project Statistical Report (Federal-Aid Projects)
- Right-of-Way Certification
- Utility Certification

Distribution

- Program Development: T-725, R-709, Federal-Aid Project Statistical Report
- FHWA: Project Package (2 sets) Federal-Aid, non-stewardship projects
- Construction Division: Advertising Package (One hard copy of the plans and special provisions and the complete package, plans and special provisions book, etc burned to a CDR for advertising through the Electronic Plan Room)

Activity Checklist

Tasks:

- Review plans, specials, and Measurement and Payment for completeness, clarity, and comments.
- Verify that the package conforms to PS & E minutes resolution report
- Review for compliance with Final Plan Check List
- Obtain approval of package from the Region Preconstruction Engineer and have the plans signed.
- Complete R-709, T-725, and Federal-aid Statistical Report
- Complete Checklist for Advertising (see Forms Appendix)
- Prepare Advertising Information Sheet (See Forms Appendix)
- Prepare a copy for the Project files. Include the following items:
  - Environmental Document
  - Design Study Report
  - Minutes of Meetings
  - Correspondence with Government Agencies and Property Owners.
  - Any Design Exceptions that may have been processed after the Design Study Report was approved.
- Upon advertisement of Project, submit to Construction Project Engineer.

Input:

- PS&E Minutes and Resolution report and review comments
- Designers' Checklist
- Utility Certificate
- Right-of-Way Certificate
- EEO Certification
- Final Package
- Contract Time
- FHWA - FMIS Reporting Manual
- Letter from Region Traffic Engineer clearing project for advertising
- Letter from Resident Engineer clearing package for advertising
- Complete QC/QA checklists, signed

Advertise Project

Activity # 90P

Overview

Advertise the project for the prospective bid opening date. Prepare and issue addenda to the bid package as required.

Responsibility

Construction Division

Description

The Construction Division:

- Processes and posts, to the Electronic Plan Room web site, the Plans and Special Provision Book.
- Issues the "Notice to Contractors" which provides a brief description of the project and the bid opening date.
- Processes contract addenda resulting from modifications to the contract documents after they have been distributed to the prospective bidders.
- Post to the Electronic Plan Room web site addenda for all plan holders, requesting acknowledgment of receipt.
- Issues the contract documents to qualified prospective bidders, and receives electronically the sealed bids for opening at the designated time and date.

Pre-bid meeting:

- Conducted when appropriate to familiarize potential contractors, subcontractors, and suppliers with project details.
- Conducted on projects involving complex phasing, sensitive environmental and public involvement issues, tight time schedules, non-routine engineering applications, etc.
- Moderated by the Project Engineer with assistance provided by the Project Design Engineer and the Project Construction Engineer, who should be available to accompany potential bidders on an on-site visit.
- Recorded by taking minutes (Required).
- May also be recorded by tape recording for future reference. (Recommended)

Product

Contract Documents package

Distribution

Post to the Electronic Plan Room web site for all interested parties.

Activity Checklist

Tasks:

- Advertise for bids
- Distribute contract document packages
- Project Manager: Develop addendum
- Project Manager: Obtain approval of addendum by FHWA on non-stewardship projects
  Obtain approval of Addendum by the Director of Construction or his staff for stewardship and state projects.
- Distribute addendum to plan holders

Input:

- Contract Documents Package
- List of Plan Holders
- Advertising Checklist
- Advertising Information Sheet

Contacts

- Federal Highway Administration
- Newspaper Agencies
- Plan Holders

Additional Reference

- Policy 08A5-11, Advertising and Awarding Construction Contracts

Forms Appendix Goes Here. Page will be removed and appropriate forms added when complete..